BULLETIN OF THE

TAYLOR SOCIETY

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

Morale as a Factor in Time Study Technique
Morris Llewellyn Cooke

Scientific Management in the Coal Industry
Jerome C. White

Problems of Bank Organization
Harry Arthur Hopf

Personnel Problems of Staff Men in Industry
A. B. Rich

Engineering Societies Building
29 W. Thirty-Ninth St.
New York

APRIL, 1927 VOL. XII, NO. 2

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PERIODICAL DIVISION

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2. **To secure the gradual elimination of unnecessary effort and of unduly burdensome toil in the accomplishment of the work of the world.**

3. **To promote the scientific study and teaching of the principles governing organized effort, and of the mechanisms of their adaptation and application under varying and changing conditions.**

4. **To promote general recognition of the fact that the evaluation and application of these principles and mechanisms are the mutual concern of the community, the worker, the manager and the employer.**

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Spring Meeting of the Taylor Society
and
Washington Conference of the Personnel Research Federation
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Comment

IN THIS issue of the Bulletin are presented papers of more than ordinary interest with respect to subjects and treatment. Mr. Cooke emphasizes the necessity of workers' consent and morale as technical aspects of time study; Mr. White describes a case representing the beginnings of the application of scientific management in an industry which is notorious for inefficient management; Mr. Hopf makes an engineering approach to the problem of bank organization, beginning, as the engineer should, with an examination of technical functions and proceeding from that point to consideration of organization, co-ordination, and other detail problems; and Mr. Rich, whose paper set the subject of discussion at an interesting session of younger members of the Society, gives some sane and wholesome advice concerning the staff executive's problem of adjustment to and co-operation with line executives.

THE reader will recall that the organized employers and organized workers of the Cleveland ladies garment industry made an agreement some years ago of which the object was regularization of operations and employment in the Cleveland market. The employers undertook to provide practically continuous employment and the workers agreed to support production standards. Measurement by stop-watch time study was the method adopted for determination of standards. Recently at the request of both parties to the agreement an investigation was made of the working of this method of determining standards. As was to be expected, it was discovered that many of the standards were not being established with satisfactory precision. But this finding did not lead to the suggestion by either party that this method of measurement be abandoned; on the contrary it brought from the workers a rather sharp suggestion that the method be improved. Says the workers' comment on the report of the investigator: "In our estimation from the viewpoint of time study data such as must be used if the standards system is to prove fair and satisfactory, there can be only two standards, namely, 'accurate' or 'reliable' and 'inaccurate' or 'unreliable.' There can be no grade between." If this point of view of workers extends throughout industry we may be able to free ourselves of much superficial, inaccurate and harmful utilization of the stop-watch.

IN THE *American Federationist,* official organ of the A. F. of L., of April, 1927, appeared the following significant editorial comment on Mr. Cooke's paper (the italics are ours):

"'Perhaps it should be recalled right at the start that good time study has never been conducted outside the workers' knowledge and consent and that the co-operation of the particular individual being studied is requisite to satisfactory results.' This keynote sentence in a paper recently read by the President of the Taylor Society indicates how the leaders in the movement for scientific management relate the worker to plans for better production.

"The paper was a report on a recent investigation of production standards undertaken for the Cleveland Ladies Garment Workers' Union. The time studies were undertaken as a productive problem and not as a means to wage determination. The union was an integral factor in the undertaking, jointly responsible with the employers.

"Mr. Morris L. Cooke, who directed the study and reported to the Taylor Society, made a notable contribution to these discussions of the Society on principles of labor relations, which began with the insistence of Robert S. Valentine upon 'consent.' The principle of consent is that upon which trade unions rest. *Organized labor realizes that improvements in technique, better methods of providing materials, and all things that contribute to efficiency are matters which affect their interests and welfare. We are therefore interested in furthering such undertakings when based upon the principles of co-operation as enunciated above.* The basis upon which the Cleveland investigations were conducted made possible co-operation and satisfactory results."

AS FURTHER testimony of organized labor's attitude towards co-operation in the development of better methods of production, we call attention to an important conference held at The Labor Institute, Philadelphia, April 9 and 10, under the auspices of the Central Labor Union and the Labor College of Philadelphia. This was, we believe, the first conference devoted to such a subject ever held by labor; and it was for that reason, as well as by reason of the substantial quality of its program, a noteworthy event. There were four sessions. At the first session four union leaders presented facts concerning labor's present efforts to co-operate in elimination of waste, and concerning opportunities for further co-operation. At the second session, a "Waste Dinner," Major Fred J. Miller, engineer-executive; Matthew Woll, union executive, and Irving Fisher, economist, discussed the subject from their respective points of view. At the third session Geoffrey C. Brown, Sanford E. Thompson and Robert T. Kent presented the consulting engineers' point of view. The fourth session was a mass meeting on union-management co-operation, at which there were addresses by industrial executives and several union officials, the principal address being that of William Green, President of the American Federation of Labor. The Bulletin will have the privilege of presenting in its next issue four important papers of this conference.

COMMENTING editorially upon this conference the *Evening Public Ledger* of Philadelphia said: "The Conference on the elimination of waste in industry just held in this city under the auspices of the Central Labor Union and the Labor College marked the beginning of a new industrial epoch . . . . the leaders of the American Federation of Labor and the leaders in the various unions are taking a comprehensive view of the whole question of production and its relation to wages." The *Evening Bulletin,* Philadelphia, remarked editorially as follows: "Employer and employe alike can find in the discussion of labor's interest in waste and its elimination by President Green, of the Federation of Labor, encouraging food for thought . . . nowadays intelligent management does not drive; it leads. Intelligent labor does not obstruct; it co-operates." That the conference should have received such editorial notice is evidence of the significance of the discussions. Perhaps the most significant aspects of the conference are that labor has again put itself upon record as favoring constructive co-operation with management, and that this latest expression of policy came from local organizations, thereby indicating that interest in waste elimination and other aspects of better management is receiving the attention of leaders in close contact with the rank and file of workers. We hope that this was but the beginning of such local conferences. They should make for greater and greater effectiveness.

Morale as a Factor in Time Study Technique[1]

As Illustrated by a Recent Investigation of the Production Standards Used in the Garment Industry in Cleveland

By **MORRIS LLEWELLYN COOKE**
Consulting Engineer, Philadelphia

PERHAPS it should be recalled right at the start that effective time study has never been conducted outside the worker's knowledge and participation, and that the co-operation of the particular individual whose work is being analyzed is requisite to satisfactory results. Now, however, it is becoming evident that group reactions vitally condition the effectiveness of time study. More and more we recognize time study as one factor in a total situation and not as a thing apart. Morale—the state of mind of the group—has become precedent to the proper practice of time study and to any reasonably accurate determination of production standards for the individual.

Because of time limitations I will seek to confine the discussion to that phase of time study which has for its purpose the determination of the quantity of a given kind of work which can and should be performed by a given worker in a specified unit of time. These measures of the output of the individual worker are referred to in the Cleveland Agreement about to be described as "production standards." This treatment will be to the exclusion of such aspects of time study as the standardization of process which is assumed to be a wholly necessary preliminary and the inducements, financial and non-financial, designed to insure the performance of given tasks. No special attempt will be made to develop the arguments which seem to favor time study as an essential factor in the industry of the future. In this connection, however, it is important to have in mind that time study *has* a function to perform in industry quite distinct from the determination of the skill or productivity of the individual worker. As a means of detecting waste motions and wasted effort generally and as a guide in determining the one best way process engineering will increasingly depend upon time study.

During the War many of the garment[2] manufacturers of Cleveland were engaged on Government uniform contracts. Largely through the good offices of the the Secretary of War the employers of the market and their organized employes[3] were led to enter into a co-operative agreement in order "to preserve peace in the industry and to further their mutual interests in the common enterprise." The preamble to this Agreement reads:-

> In view of their primary responsibility to the consuming public, workers and owners are jointly and separately responsible for the cost and quality of the service rendered. It is agreed that cooperation and mutual helpfulness are the basis of right and progressive industrial relations, and that intimidation and coercion have no proper place in American industry.

The Agreement further holds:-

> That it is due to the consuming public whose patronage supports the industry as well as to the very existence of the industry in Cleveland itself, that all activities, decisions and arrangements growing out of the Agreement, shall be based on the principles of true efficiency and the necessity for the lowest unit cost of production possible under the wage scale as determined by the Referees.

Our time will not permit even a summary of the various points covered by this Agreement which during the eight years of its existence has been wholly successful in keeping peace in what has usually been considered a turbulent industry. The administration of the Agreement, is in the first instance, in the hands of a committee of two[4]

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[1] A paper presented at a joint meeting of the Metropolitan Section of the Management Division of the American Society of Mechanical Engineers and the Metropolitan Section of the Taylor Society, New York, March 9, 1927.

[2] Technically women's cloaks, suits and dresses are known as "garments," while men's suits and overcoats are known as "clothing."

[3] Members of the International Ladies Garment Workers Union.

[4] Mr. Abe Katovsky, Business Agent of the Cleveland Joint Board of the International Ladies Garment Workers Union, and Mr. Fred C. Butler, Manager of the Cleveland Garment Manufacturers Association.

—a representative of the employers and a representative of the workers. Disagreements, which fortunately have been unexpectedly infrequent, are referred to an Impartial Chairman[5]—a person wholly outside the industry and chosen by both sides. A Board of Referees also mutually chosen and recruited from without the industry fixes the wage scale annually. It may be revised at six months' periods on the request of either side with a change in the cost of living affording the only basis for a change either up or down.

Two outstanding features of the Agreement are the concession of a guarantee of forty weeks of work on the part of the employers, and the acceptance of measured production for the individual employe on the part of the Union through

> a weekly minimum guaranteed wage for each worker and an additional wage depending upon his or her production measured by standards based upon time studies.

It is provided that "the unit of measurement shall be the production of a worker of average skill working at normal speed for a week of forty-four hours."

There is a committee on standards recruited from the workers, named by the Union in every department of a shop. This committee approves or disapproves the standards submitted to it. In case the standards submitted are rejected either by the committee of the Union or by the employer, the matter is taken up by the representative of the Union and the representative of the Association. In case of a disagreement it is provided that these two shall select "a third party who shall be a person skilled in the trade." The decision of this third party is final.

Thus it was early recognized that disputes about standards (i. e., the determination of the quantity of work that is to be performed in a given time by an individual employe) involve questions highly technical in character which do not lend themselves readily to equity procedures. In stipulating that such disputes were to be settled "by one skilled in the trade" it is probable that the intent was to discourage such disputes by practically throwing them outside the Agreement. At any rate during the first five or six years of the Agreement such disputes as arose about standards were ironed out in the shop. Once in 1924 and again in 1925 the writer notwithstanding his lack of "skill in the trade" was asked to hear and settle disputes of this character.

The following quotation from the decisions rendered in these cases bear directly on our subject:-

> 1. Our procedures wisely afford the employes, through an appropriate committee, an untrammeled opportunity to comment upon and even to criticize each and every standard set up. This relates to any given standard as a whole as well as to any of the elementary units or parts of which it may be composed. Any restriction of this opportunity for critical comment on time study data would not only be entirely contrary to the spirit of the Agreement, but would not make for that basis of understanding, as between the technicians and the workers, which is essential to progress.
>
> However, the undiscriminating refusal of an entire line[6] is not at all of a piece with either the Agreement or a scientific approach to industry. Such a sweeping rejection of time study work—presumably carried on in good faith—if made with a full understanding of its implications, would be the equivalent of rejecting standards—perhaps not the most essential idea underlying our Agreement—but certainly one which if abandoned would require a radical revamping of the understanding under which the market has been satisfactorily operating for over five years.
>
> 2. The employes have rejected the standards set for virtually the entire line largely on the ground that the earnings under them showed a decided falling off as compared with previous seasons. Assuming reasonable performance on the part of the manufacturer, and especially on the part of the time study man who determines the standards, any such wholesale rejections would be tantamount to a violation of the spirit of the Agreement. Styles do not change so completely from season to season as to warrant wholesale rejections. Standards mutually acceptable one season are, other things being equal, not subject to question the following season. In other words assuming a proper analysis (through time study) of a given piece of work and of the time taken on its individual elements as well as the orderly maintenance of clear records of previous observations and standard determinations—such wholesale rejections are entirely out of order. Such criticisms of standards as are made must be reasonably discriminating and capable of detail statement and analysis.
>
> Criticisms once raised must likewise be met—not by generalities, but by reference to the data which are in such shape as to be reasonably convincing even to the layman. After all standards (shop standards, market standards and some day inter-market standards) will only come into general use as they are understood by and command the confidence of those who work under them as well as those who make the determinations. It is a part of the

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[5] At present Dr. Jacob H. Hollander, Professor of Economics, Johns Hopkins University, Baltimore, Md.

[6] This term is used as including all the season's models, in this case numbering seventy to eighty individual garments.

duty of the time study man to interpret his work to those most intimately affected by it. Access to time study records should always be reasonably easy. The records themselves should be maintained in such a way as to make them understandable and broadly informative.

As a direct result of the hearing of the last of these two cases Mr. Francis Goodell, an industrial engineer and a member of the Taylor Society, was employed at the joint expense of the Union and the Manufacturers Association to make a study of the whole standards situation. A copy of his report of this inquiry[7] with comments thereon by the various parties at interest has been filed in the Engineering Societies Library. As this report has the distinction of carrying the first discussion of the technique of time study as viewed by organized workers this concluding paragraph of the Union's letter of comment is not without significance:

> In conclusion we beg to advise that our proposals for the further improvement of the standards system are submitted in a constructive spirit. We agree with the thoughts expressed by Mr. Goddell in his report and by Mr. Cooke in his letters of transmittal concerning the value and soundness of the system and the progress made towards its realization. We stand ready and willing to do what is in our power as a union of constructively minded, skilled and capable garment workers to make our contribution to the further improvement of the standards system.

It would be a mistake to over emphasize the importance of this Cleveland departure from usual industrial procedures. The number of workers involved is small and the Cleveland garment market is not by any means a dominant factor in the garment industry. The resources available are necessarily limited. In appraising the results we have to recognize that on both sides there always have been, and still are, serious misgivings as to the operation of the plan. The Cleveland manufacturers, by virtue of their geographical location, have had difficulty in securing a proportionate share of the trade as against the more favored Chicago and New York markets. But that in spite of handicaps these novel industrial procedures—involving severe disciplines self imposed upon employe and employer alike—have survived affords strong testmony in their behalf. There is certainly no thought of their abandonment.

In Mr. Goodell's report both time study and standards are discussed with a range much wider than is possible in this present paper. Further references to it and the Cleveland Agreement will therefore be made only as they contribute directly to the development of my theme.

The fact that the Cleveland garment workers constitute a section of one of the more important needle trade organizations which in turn is affiliated with the American Federation of Labor is quite incidental. The discussion applies to so-called company unions or to any situation where some degree of group solidarity has been established or where group reactions are in any way recognized or valued.

Indeed such a recognition of the groupings of the workers in industry is forced on us by the growing integration of the industrial process. We have come to realize that the production mechanism cannot break or even weaken at one point without endangering the total effort. The effects of discord and lack of understanding can no longer be wholly localized in view of the inter-dependence of all the agencies of production. Because, for instance, there must be maintained a nice balance as between sales, finance and production, the enthusiasm of the sales force—even the attitude of the investing public—may strongly influence the men and women at work on the product. So we come to reckon with the collective mind as well as with the reactions of individuals. Further progress in establishing the art and science of time study will become more and more dependent upon morale interpreted as the state of mind not of one group but as that totality of attitude resulting from those various groupings and regroupings through which we members of the human family are related to any given undertaking.

As first practiced time study was concerned almost wholly with the individual. Taylor recommended in the early days that an operator while being studied should, as far as possible, be isolated and further suggested that while being observed he be given some special compensation to insure active participation in the work. As the mechanisms of time study became more familiar in the shop and their purpose better understood these measures were neither necessary nor desirable. Today—except for a negligible amount of laboratory research—time studies of individuals are made at the regular work places and in full view not only the operator but of his associates. This development is especially suggestive in view of the larger number of persons performing like operations in present day manufacturing plants.

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[7] A report on the Production Standards Situation in the Ladies Garment Industry of Cleveland with comments by officers of the Employers Association and of the Union, August, 1925.

The most serious defect in our current time study practice—as it affects and is affected by these group relationships—lies in the almost complete inability to take advantage of the softening influences of publicity. Notwithstanding the fact that our first time studies were made over forty years ago there is today no generally recognized code under which observations are made or recorded. The consequence is that with negligible exceptions time study data is individual to the observer and except in the hands of the person who made the observations cannot be used.[8] The systemization of our data is generally too informal to permit of its being grasped by the layman. For every variety of work it is possible to have at least a reasonably solid sub-structure of time study data relating particularly to "allowances" applicable to a given shop and to operations and sub-operations most frequently encountered and those least likely to change—which can be passed around somewhat as we do the multiplication tables. We are more tolerant of variation where some part of the structure is reasonably stable. In my use of the term "time study" I have in mind of course that painstaking effort to get at bottom facts which involves not only the division and sub-division of the work to be done into its elementary parts but timing observations on each such part in such number as to practically eliminate guess work. I do not have in mind those over-all approximations and guesses which are current in industry under a dozen alluring names.

Curiously enough the practitioners of time study have never banded themselves together—even as a group within a parent organization. Perhaps this is the reason for an almost complete lack of a commonly accepted technique. Certainly the fact that no such organization exists reflects no credit on the art. It will not profit us perhaps to speculate on all the reasons as to why this numerous group of technicians have never sought to establish this quite common means for the exchange of views and the stabilization of practice. Certain it is that any such organization would necessarily blazon at the top of its program an emphatic prohibition against secrecy in every phase of time study work. There can be no reserve in condemning those who may be using under-cover methods in this field. Observing workers without their knowledge and consent and participation is wholly bad.

When such an organization as I have indicated comes into existence one of its first tasks will be to prepare a very simple treatise on time study—in leaflet form—for the information of the men and women in the shop. In view of the small amount of information which the general public has as to objectives and methods of time study we are assuming quite too much in asking that same public to accept its conclusions.

The literature of time study is replete with references to the difference in productive ability as between a worker designated as "first-class" and one who is rated as not "first-class"—this latter sometimes referred to as "an average worker." In the absence of more exhaustive research than has yet been given to this subject one must tread lightly. But I may be permitted to raise the question as to whether the difference between what might be called "normal" men and what are known as "sports" in biology may not be the real consideration.

Taylor says:[9]

> That there is a difference between the average and the first-class man is known to all employers, but that the first-class man can do in most cases from two to four times as much as is done by an average man is known to but few, and is fully realized only by those who have made a thorough and scientific study of the possibilities of men.
>
> The writer has found this enormous difference between the first-class and average man to exist in all of the trades and branches of labor which he has investigated, and these cover a large field, as he, together with several of his friends, has been engaged with more than usual opportunities for thirty years past in carefully and systematically studying this subject.
>
> This difference in the output of first-class and average men is as little realized by the workmen as by their employers. The first-class men know that they can do more work than the average, but they have rarely made any careful study of the matter. And the writer has over and over again found them utterly incredulous when he in-

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[8] There are, of course, notable exceptions—such as the Link Belt Co. and the Tabor Manufacturing Co. where the original work was so thoroughly done that fifteen to twenty years later it is still in active every day use.

[9] "Shop Management," pages 24-25.

> formed them, after close observation and study, how much they were able to do. In fact, in most cases when first told that they are able to do two or three times as much as they have done they take it as a joke and will not believe that one is in earnest.
>
> It must be distinctly understood that in referring to the possibilities of a first-class man the writer does not mean what he can do when on a spurt or when he is over-exerting himself, but what a good man can keep up for a long term of years without injury to his health. It is a pace under which men become happier and thrive.

Taylor wrote this over twenty years (1903) before modern psychology had discovered that in all groupings, any characteristics are spread over a frequency curve in such a way as to present an altogether new picture of variability. It is no longer scientific to classify on the "white or black—good or bad" basis, but on the basis of a recognized norm and a dispersion about it. Therefore in seeking operatives best fitted for a given class of work we will probably be well advised to look neither for "speed boys" nor subnormals but for high class normals—doubtless corresponding to what Taylor had in mind in using the term first-class worker—"a steady, intelligent and conscientious worker, skilled in the trade who produced good work and whose performance might under proper conditions and instructions reasonably be expected to be attained by any one physically, intellectually and temperamentally suited to the work."[10] It is, generally speaking, possible of course to find highly exceptional men. But just how advantageous it is to look for them in industry is another matter. My own point of view is that of Colonel H. K. Hathaway—a member of these Societies—quoted at length in my introduction to the Cleveland Report.[11] No one interested in the philosophy of time study can afford to miss this statement of Colonel Hathaway's, summarizing as it does a peculiarly ripe experience in this field. An all star cast on special occasions may draw an audience. But such aggregations of talent are not usually continuing commercial successes. And, even more important, they put a burden on the manager which even profits may not sustain in the long run. As with the stage so it is likely to be in industry.

From the standpoint of the workers the statement of Colonel Hathaway's that the use of studies of "average" performance may actually result in cutting rates is especially interesting:-

> For example, let us consider that time studies are made as indicated by the report, on employes of widely varying degrees of skill and as a consequence average production standards are set. Theoretically under such an arrangement the various workers earn proportionately to their ability to produce. Gradually, however, as a result of improvement in management and all of the conditions involved as well as of self-development of the workers the difference in ability between the various workers diminishes until they are all within reasonable limits equally competent. At the same time changes in product, method, etc., gradually come about and new studies are made. The base or minimum wage remains the same. Now, under the earlier state of affairs the earnings of the average worker would have been let us say 100 and that of the first-class worker say fifty per cent higher, which if, as is not so improbable as it may sound, the gradual improvement mentioned resulted in the entire force becoming first-class workers we would find them all earning the figure represented by 100 instead of 150. I am confident that with a reasonably constant force I could bring this about (i.e., the raising of the *average* level of skill and of performance to the level of the *first-class*) in from two to four years. Of course there would be a few exceptional people who could exceed the standard as well as a very few who might never attain it, but in setting standards we are not in the first instance concerned with either of these.

From the standpoint of the group these conclusions if valid have an important bearing on the attitude to be taken toward time study. Naturally no group is going to be wildly enthusiastic about any system under which a considerable percentage of its membership is to be barred from further activity. But if, as appears to be the case, it is possible through standardization of process, providing the proper service for the worker, coaching and otherwise within a very short time to carry the great majority of a group of workers to the level of first-class performers and to the enjoyment of the higher earning power (and this without prejudice to their associates!), we can expect to see the great body of workers won over as the Cleveland garment workers have been to the advantages of time study. Colonel Hathaway is undoubtedly right in pointing out the futility of time studies based on the performance of "average" men. It is only time study data based on reasonably first-class performance that abides. The Cleveland Agreement does provide that "average" workers are to be studied in setting production standards. But we seem to make progress at times without being too meticulous in our interpretation of words and phrases. The life that can be read into such a document as the Cleveland Agreement is what counts.

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[10] Cleveland Report, pages VI-VII.

[11] Ibid, page IV and following pages.

Every system of wage remuneration—even the best of them—I suppose is open to abuse. Certainly under most of those in current use we can find outstanding instances of where the services of individuals which appear to be of equal value to the enterprise are differently compensated or where the same compensation is paid for services obviously differing in value. In his discussion of a paper read before the Taylor Society by Mr. William Green in December, 1925, Colonel Sanford E. Thompson gave instances of this kind occurring under a piece rate system in a shoe factory. Out of the practice of any industrial engineer similar examples may be cited almost without limit. The morale of any group—certainly its sense of solidarity—is seriously affected by such conditions. The group as well as the individual thrives on justice. If time study can be made one dependable means of securing a larger measure of justice in the relations between employer and employe it will at the same time have removed a frequent source of friction—generally unrecognized—between the workers themselves.

It is hardly likely that time study will get strong group support except as it is of the very best variety made possible by the state of the art. Note this quotation from the union comment on the Cleveland study:

> Mr. Goodell attempts to evaluate the data by four standards, namely "Excellent," "Good," "Passable," and "Unsatisfactory." In our estimation from the viewpoint of time study data such as must be used if the standards system is to prove fair and satisfactory, there can be only two standards, namely, "Accurate" or "Reliable" (corresponding to Mr. Goodell's "Excellent") and "Inaccurate" or "Unreliable" (corresponding to his three other standards). There can be no grades in between. It is just because so much of the Cleveland time study data is in the "Inaccurate" or "Unreliable" class, to say nothing of the careless way it is frequently used (all as revealed by Mr. Goodell's report) that trouble and suspicion result.

This seems to afford a further argument—if such be needed—for the organization of time study practitioners to the end that some generally applicable standards of practice be set up and made available to the lay public.

We no longer associate with time study that simple undifferentiated variety of exactitude which it was formerly assumed to possess. This observation is not intended to reflect in any way on the present or ultimate possibilities of the art. It is rather as a word of caution to those who in the first flush of enthusiasm as to an exceedingly interesting kind of work may easily fail to reckon with all the variants. It is a field wherein it pays to recall that the moon is not just where it was supposed to be and that even the mathematicians are at a loss to know why—and this after our best minds have been giving plenty of attention to astronomy for several thousand years. Exactitude is a relative term, especially in the early days of any art or science.

In this connection I recall a statement of the late Colonel Keppele Hall—a member of these Societies—to the effect that in a certain plant in Baltimore when there "was trouble on"—some dispute between the men and the management—the output on an operation with which he was specially familiar would drop fifty per cent and he —Colonel Hall—be unable to locate a single untoward act on anyone's part. Without citing either complexes or inhibitions as possibly responsible every industrial engineer has had the experience of setting what were considered fairly stiff standards only to see the workers perform them in a part of the time allowed.

In suggesting that in the past we have viewed time study as too exclusively a mechanism I hope I will not be misunderstood. Our greatest chance of making time study an increasingly useful practice lies in the direction of making our observations more and more in detail and in seeking a greater and greater degree of precision in our conclusions. And yet when all this is said and done we will fail, and deserve to fail, if we view time study exclusively in its mechanistic aspects. In the end it is invariably discovered that devices in themselves do not produce. Effectiveness comes here, as everywhere, as a result of pride and joy in the job. Anything which does not further such ends we must view with suspicion.

If we had practiced time study over a much longer period than has actually been the case, and if further, we had spent as much effort in winning the group to its support as in convincing the individual we would still have to admit that the sum total of the ways in which a worker is capable of being influenced by the most accurate time studies represents only a part—perhaps a relatively small part—of the whole sum of influences which affect his conduct and output. Industry to be effective must be conceived as a process—itself within a Process. And to ascribe to time study anything more than the importance of one agency operating within this stream is to see it out of perspective.

Of course, on any such quest as this we have the future very largely in mind. We might easily decide that as affecting the present time study does not play a role important enough to warrant discussion, and yet see it a mechanism of very great importance in our study of industrial tendencies. Our problem in these Societies of course is to use present methods and present outlook only as a platform from which to build a better and more genuinely effective future. Can time study standardized as now practiced—or as its present practice may be revamped—be made to minister to the collective as well as the individual well-being of those engaged in industry and thus be made to increase industry's contribution to Society? That is the question we are discussing.

Perhaps from the standpoint of the group as contrasted with the individual the starting point in any discussion of time study should be a consideration of the conditions under which it can be held to be desirable. What are the ear-marks of an appropriate setting for the profitable utilization of time study methods? To give one rather bald answer to this inquiry is to say that a stop watch by itself, unrelated by an approved procedure and technique to the rest of the industrial structure and process, has no place. But to put the question in the way of any enduring settlement is the work of the group—not of the individual.

The most conspicuous characteristic of our current American industrial situation lies in the fact that individually and collectively we are increasingly awake and aware. The fact that we are somehow industrially on the move with a destination not yet fully determined more and more fires the industrial imagination. In fact we have become so accustomed to the idea of change that anything which appears static challenges suspicion. As an under current to all this runs the constantly deepening conviction that we have only begun to tap the possibilities of production. The idea gradually grips us that only as the various factors in industry cooperate can we markedly raise the general standard of living. And with the understanding that there shall be a reasonable division of the returns from each recurring raising of the level of productivity the workers are generally evidencing a keener interest in uncovering every possible source of waste—in material, in process, in management, and in individual and group conduct.

In the light of all this it is becoming more and more possible to bring any suggested policy, such as the establishment of production standards through time study, under a dispassionate and even friendly review by the group. But it is also becoming more and more evident that time study can play but a comparatively insignificant role where group morale has not been established. And further, if time study analysis is to be given a recognized place in the evolving industrial regime it will be largely because in its practice every proper consideration is given to its bearing on group morale.

Discussion

John A. Fitch.[12] On reading Mr. Cooke's paper, my first reaction was that here is an extension of the ideals of scientific management in the true spirit of Frederick W. Taylor. To verify that impression I turned to Taylor's "Principles of Scientific Management," and I found this:

> The writer is one of those who believes that more and more will the third party (the whole people), as it becomes acquainted with the true facts, insist that justice shall be done to all three parties. It will demand the highest efficiency from both employers and employes. It will no longer tolerate the type of employer who has his eye on dividends alone, who refuses to do his full share of the work and who merely cracks his whip over the heads of his workmen and attempts to drive them into harder work for low pay. No more will it tolerate tyranny on the part of labor which demands one increase after another at the same time it becomes less instead of more efficient.
>
> And the means which the writer firmly believes will be adopted to bring about, first, efficiency both in employer and employe and then an equitable division of the profits of their joint efforts will be scientific management, which has for its sole aim the attainment of justice for all three parties through impartial scientific investigation of all the elements of the problem . . .[13]

Mr. Cooke's paper is a record of the results of the sort of patient inquiry that Mr. Taylor here suggests, and which is of the essence of scientific management. It is as scientific a method as the series of studies leading up to the discovery of high speed steel, and if Mr. Cooke is less bold in his conclusions than Mr. Taylor, at the end of that famous series of experiments, it is because his materials are human and not inanimate and therefore subject to greater and less predictable variations.

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[12] New York School of Social Work, New York.

[13] Frederick W. Taylor, "The Principles of Scientific Management," pp. 138-139.

There are two major obstacles to the achieving of that degree of co-operation between management and men that Mr. Taylor advocated and that Mr. Cooke by implication favors in his paper. One of them was recognized so clearly by Frederick W. Taylor that in a sense it formed the basis of his philosophy and led him to the elaboration of what came later to be known as the principles of scientific management. This was the fact that the ideas and practices of management may be such as not only to make co-operation unlikely but such as to make it positively dangerous for the workers to attempt to adjust themselves consciously and enthusiastically to the purposes of management.

Nowhere, I think, will you find a more eloquent condemnation of restriction of output on the part of the workers nor a clearer indictment of management on account of its responsibility for it than in Frederick W. Taylor's "The Principles of Scientific Management."

His influence and the influence of scientific management generally have been steadily in the direction of the elimination of the sort of exploitation of the worker that makes co-operation impossible.

The other obstacle is one that is clearly suggested by Mr. Cooke's paper. It is not enough that the purposes of management should be such as to entitle it to the confidence and support of the workers—they must have convincing evidence that such is the case. Wherever the rank and file of the workers are in ignorance of the problems and purposes of management, co-operation is unlikely and suspicion is to be expected.

Hence the great contribution to sound principles of management suggested in this paper. The clear inference to be drawn from this study of co-operation in a limited field is, I think, that the following steps be taken: First, the organization of the employes in any establishment on such a basis as to make possible the selection of such representatives to deal with management as will command the confidence and respect of the rank and file of the workers. Mr. Cooke suggests that this may be accomplished either through a trade union or through what has come to be known as a company union. Personally, I am inclined to doubt that it can in the long run be accomplished through the agency of the company union. But that is of no significance here. I am in thorough agreement with Mr. Cooke's basic contention at this point. The prerequisite is that the representation must be such as to continue to command the confidence and respect of the rank and file of employes. If only that can be accomplished, the name that you give to it is immaterial.

The second essential is the frank inter-change of opinion. It is essential that management and workers shall understand each other. If there be honesty of purpose on the part of management and a willingness to deal justly with employes, that fact will become increasingly apparent as the secrecy and mystery are removed.

The third essential suggested here is that questions about which management and workers are unable to agree should be referred to the judgment of disinterested and intelligent outsiders.

Mr. Cooke's paper is of outstanding importance because it shows that where these three principles have been in effect it has been possible to bring about co-operation with respect to one of the most difficult and knotty problems with which management and workers are concerned. In a field where suspicion generally runs riot, and where co-operation is usually withheld to the last ditch, it has been possible to develop understanding and co-operation to a very high degree. If such a feat can be accomplished in the field of production standards, are we not provided with a sound basis for the belief that much more extensive co-operation is possible?

Charles W. Lytle and David B. Porter.[14] Mr. Cooke has pointed out the only rational procedure for the introduction of time study methods, namely, the treatment of employes as a group rather than as individuals. The pioneers in this field dealt with individuals because employers had always treated their workers that way. Today the specialization of machines and the extreme division of labor have broken down individual relationships and have welded the employes into groups which are keenly conscious of their common interests. This movement has manifested itself in many forms of employe representation and participation in management. It is wholly in accordance with modern developments, therefore, that such a vital factor as the establishment of production standards should be considered from the standpoint of its effect upon group reactions.

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[14] New York University.

The Cleveland agreement shows an enlightened view on the part of the garment workers toward a mutual interest in lower unit costs, made possible by the measurement of output. On the other hand the employers in that industry have shown great enlightenment in conceding to employes an equal interest in the determination of standards, and the recognition of the importance of steady work. Furthermore, the spirit of democracy in industry which is established by this agreement is thoroughly vindicated by the broadminded and constructive criticism rendered by the garment workers through their Union's letter of comment on Mr. Goodell's investigation of the standards situation. This kind of helpful participation is far removed from some early and now obsolete practices of carrying on time study operations in secret.

Mr. Cooke has indicated that no group is going to be enthusiastic about a system of production standards which would bar a considerable portion of its number from further work. This group point of view compels management's recognition. In order to satisfy this point of view some engineers have studied the normal worker, with the result that their standards which seemed high at first were eventually too low. While interest should center around the normal worker, it is a mistake to neglect the "sport" or exceptional worker. His methods and motions may be studied and built into the structure of "the one best way." Thus his skill may be captured and acquired by the normal workers who ultimately raise their performance to a point approaching that of the exceptional worker. The increase is accomplished by the elimination of waste motion, not by additional energy. This was illustrated in a recent paper before the American Management Association by Mr. Blakely of the General Electric Company, wherein he cited the case of a worker whose performance had been below average. This person was instructed in the methods of the one best way as developed by micro-motion studies, and ultimately attained the performance of the fastest workers. We wish to stress the educational aspect of capturing the "one best way" and teaching it to others. Advancement through greater earning power of course must follow.

Mr. Cooke has stated at the beginning of his paper that improvement and standardization of processes are necessary preliminaries to final time study. We wish to emphasize the importance of that preliminary for two reasons; (1) because we believe that positive results have been defeated because of neglect of it, (2) because in that phase lie many of the agencies for promoting the group morale, here so splendidly portrayed.

Thomas W. Mitchell.[15] I agree heartily with the thesis that a good understanding of the purpose of time study, even of something of its technique, by the body of workers, and endorsement of time study by them are important elements in its successful application.

Much of the misunderstanding of and opposition to time study by those who have not come into intimate contact with it are due to ideas suggested by the fact that the timing instrument was called a "stop watch." This suggested the strenuous effort of the sprinter or other speeder on the race track. Mr. Taylor's dwelling upon the selection of a *first-class* man for time study observation reinforced the suggestion, confirmed the misunderstanding and heightened the opposition.

The big job is to get the great body of workers, including their leaders, to understand that *one* of the two great problems in production is to conserve resources—and that time study is merely a method of scientific investigation, the object of which is to promote such conservation. We all experience a variety of wants. Our wants of each variety are satisfied either by the consumption of goods of a particular variety or by the application of some particular variety of personal service. The goods are produced by the application of energy to material substance. The rendition of personal services also usually involves the expenditure of energy. The various material substances become available day by day or season by season only in limited quantities. Energy with which to convert them into goods suitable for consumption also becomes available day by day only in a limited quantity. With even the most effective application of the daily available energy to the daily available materials, only limited quantities of the various kinds of goods can be made available for the satisfaction of the several varieties of wants. Every spoilation or other waste of material, every misapplication of energy, makes less the quantity of some variety of goods that becomes available.

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[15] Economist with Federal Trade Commission, Washington, D. C.

Now material can be wasted by faulty planning of the use of it, as every garment cutter knows. Energy can be wasted in various ways. It can be wasted by doing work that need not be done, by doing needed work with the assistance of implements that are not best adapted to the purpose, or, even with the assistance of the best implements, by applying the energy in a manner that consumes more of it to accomplish the given purpose than would be the case if it were applied in a different manner.

Time is involved even where a unit of a commodity is produced with the minimum consumption of material, by the application of only the minimum amount of energy in the most effective manner with the assistance of the best adapted appliances. More time per unit is usually involved where more energy is applied in the less effective manner or with the inferior appliances. Certainly more time as well as energy, and sometimes more material, are consumed where unnecessary work is done, i. e., work that does not contribute to the desired effect. And time is important as well as are materials and energy; for our wants not only require time in their satisfaction, but they recur in time.

Now time study is a method of investigation whereby are discovered removable or avoidable conditions that make the work content of operations greater, more energy-consuming, more time-consuming than is necessary; a method of investigation whereby the various modes of performing an operation are studied so as to determine which is the least time-consuming. These uses of time study are quite as important as is the third use; namely, that of furnishing data on the basis of which to form intelligent and reasonably accurate judgment as to the rate at which the given operation should be performed under specified conditions, with specified appliances and by a specified method.

To illustrate, I found by means of an over-all time study on a certain operation, that forty-four per cent of the available time was wasted for the operatives because they were kept waiting for work to be assigned to them. They were putting wrappers on spools of copper wire; and I found that much of their time was consumed in stripping off wire that had loosed up and formed a tangle. Valuable material also became useless because of these tangles, for the wire was worth seventy-eight cents per pound. The entire waste of material and all but four-one-hundredths of a minute of time per spool were avoided by lengthening the preceding operation to the extent of securing the end of the wire. An assistant of mine found in a certain coat shop a variety of methods of performing the same operation, the most time-consuming method requiring nearly twice as much time per coat as the least time-consuming method.

The discovery of these makes possible the removal or avoidance of the conditions that consume the operative's time and energy unproductively, makes possible the choice of, and instruction in, methods that enable him to turn out more units of product with the same effort in the same time.

Increasing output thus does not involve "speeding up" the worker, except where the result of the time study is to speed up an automatic machine, or combination of automatic machines, and then only to the extent that the previous mal-adjustment of the machines wasted the worker's time. Indeed the only speeding up of workers, other than the elimination of enforced idleness and of loafing, that is possible is that speeding up that comes through the worker's gain in skill.

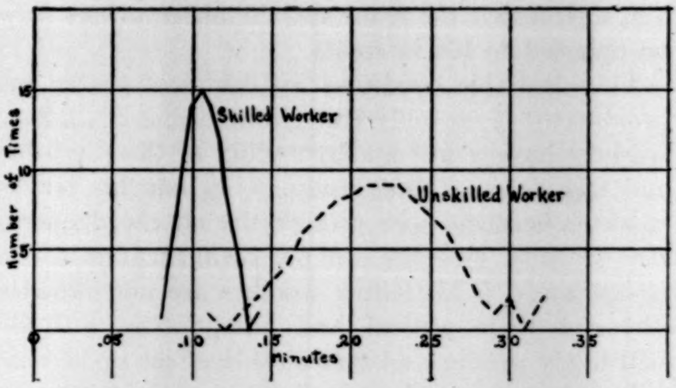
As an operative repeats a given sequence of motions time after time under like conditions and with like appliances he gains facility and precision in the performance. In the course of time he attains to a maximum facility and precision. When this maximum is reached, he performs the sequence. I believe, with the minimum personal expenditure of effort. The period of practice required for this maximum skill probably varies with the nature of the work and with the operative. In winding fine wire electro-magnet coils on specified power-driven machines, the period was six to eight weeks. (But we could determine by the end of the third week whether a given operative would be able to attain that skill necessary for attaining the production standard.) As the operative gains in skill he automatically "speeds up."

This is the only kind of "speeding up" that should be aimed at, except the elimination of loafing and inattention. The speeding up that comes with increased skill does not increase the strain upon the worker or the drain of his energies.

If the leaders of the great body of workers could gain a thorough appreciation of the above stated production problem and the above stated functions of time study, so that explanations could come to the workers from sources in which they have confidence, the attitude of the workers could be brought around to an enthusiastic support of time study properly safeguarded.

An elementary time study made upon an operation performed by a fully skilled operative presents features that are markedly different from those of a time study made upon the same operation performed by a relatively unskilled operative. This is particularly true if the conditions are so nearly uniform that there are no variations in conditions from unit to unit of product to cause a marked variation in the time of certain constituent elements. If each operative be timed for each elementary operation on each of, say, one hundred units of product and the recorded times for an element be charted, the graphs for the element as performed by the two operatives will present appearances similar to those in the accompanying chart. In this chart distances along the base line represent time in minutes and vertical distances represent the frequencies with which the particular elementary operation is supposed to have been observed to have been performed in the designated amounts of time. The straight line graph represents the performance of the highly skilled operative; the broken line graph represents the performance of a relatively unskilled operative. Both graphs exaggerate somewhat the degree of concentration that has been observed in practice; but they picture the differences very well.

The tabulated values for the skilled operative will exhibit the following features for each elementary operation: (1) there will be an observed time for the element whose frequency is pronouncedly greater than the frequency of any other element time, except, perhaps, the frequencies of the two readings nearest it (one greater, one less); (2) there will be a number of other readings, but the graph will slope steeply away from the reading of maximum frequency—more rapidly on the side of smaller than on the side of larger readings, so as to form a "skew" curve of variation; (3) the minimum reading will usually be close to the reading of greatest frequency; (4) the whole range of variations will be comparatively narrow.



The readings for the same element as performed by the relatively unskilled operative will present the following features: (1) the range of variation will be from three to five times as great as in the case of the skilled operative; (2) there will be no one reading, or group of three adjacent readings, of frequency markedly greater than the frequencies of a number of other readings; (3) the reading of maximum frequency, if there is a maximum, will be much greater than the maximum for the skilled operative, and the frequency much less pronounced; (4) the minimum reading is likely to be near or somewhat above the reading of maximum frequency for the skilled operative; (5) the graph is much flatter than for the skilled operative.

As the unskilled operative becomes more skilled, his performance will exhibit more and more the characteristics portrayed by the graph for the skilled operative. If, however he is not so adaptable to the particular kind of work, he will not be able to develop a performance whose graph will coincide with that of the adaptable operative who has attained to full skill, but his most frequent reading for the given element will remain appreciably higher.

Time studies for the purpose of obtaining element time data for production standards should be made only with the co-operation of skilled operatives. As far as practicable, the operative should be so absorbed in the work as to forget that he is being observed; for otherwise his conscious mind is likely to interfere with the easy, precise, automatic action that results from the guidance of the sub-conscious mind and to detract somewhat from the skill. Obviously this desirable condition is not likely to be realized if there is in the operative's mind any suspicion, any fear, any economic theory, or any other idea from whatever source, that causes him to feel that the results of the observations may be opposed to his interests.

This desirable condition will be most nearly approximated if not only the operative but his fellow workers have a full understanding of the purposes and technique of time study. I include his fellow workers because even though the observed operative is fully disposed on his own account to be co-operative, if his fellow workers are not likewise disposed their critical and antagonistic attitude will likely produce an undesirable effect upon him.

It is not practical to teach time study technique to each operative. Where, however, there is a union, either trade or house, it should be practicable to find several members of the union who can be developed into capable time study observers. If the co-operation of the union can be obtained to such an extent, and the union can thus be equipped with competent time study observers of its own, appreciation of the purposes and technique of time study is likely not only to be conveyed to the union leaders but to spread through the body of workers much more effectively than could be accomplished by any "primer" written by technicians but not practiced by any of the workers. We learn by doing.

On the basis of my observations, I agree that, under conditions affording an incentive to productive effort, skilled workers tend to concentrate, in rate of output, closely around a norm. I have watched whole departments come in the course of a few weeks from a wide variation in rate of output up to a range from a few points below to a few points above the adopted standard. I have seen whole departments of experienced operatives go along week after week, each operative at or slightly above standard.

I do not mean by this, however, that every person chosen at random can attain such skill in whatever operation to which arbitrarily assigned as eventually to attain the standard. Some are better adapted to one kind of work, some to another. Where, however, there are properly determined and properly applied production standards, a selective process goes on. It becomes apparent in the course of three of four weeks whether the particular recruit will be able eventually to attain the requisite skill and, if not, the recruit is transferred to another kind of work. Only those reasonably adapted to the particular kind of work remain at it.

It is because of this selective process that the operatives who remain on a given operation under a system of production standards attain rates of output that concentrate closely around a norm. The average time per unit for such operatives would, if charted, exhibit characteristics similar to the element-time graph for the skilled operative except that its "skewness" is likely to be in the reverse direction. A similar graph for the average time per unit attained by a group of unselected operatives, even though each had attained the maximum skill possible for him, would exhibit characteristics more like that of the element-time graph for the unskilled operative, although the most frequent time might not be so much greater than the most frequent time for the selected group.

There is undoubtedly a difference between the skilled worker and the "sport." I have in mind the operation of finding the two ends of fine copper wire that is wound into a solenoid ignition coil. These coils were multi-layer coils wound in sticks of fifteen coils each. The sticks were sawed up into the individual coils. Then came this operation of "pulling ends," which were concealed between layers of insulating "Jap" paper. There was one young woman whose finger tips were so sensitive that she could instantly locate these ends by passing her finger tips over the ends of the coils. Her rate of output was several times that of any other operative. She was made instructor in the operation: but she could not teach sensitiveness of touch to the other operatives.

John H. Williams.[16] I infer from what Mr. Cooke tells us that the interest, in the needle trades in Cleveland, both of employers and employes, in real scientific time study has increased more or less in proportion to their troubles in adjusting their differences through negotiation and barter and that both employers and employes have resorted to time study as a basis upon which to adjust their differences largely because of their inability to make a satisfactory adjustment in any other way.

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[16] Consulting Engineer, New York City.

I want to suggest the analogy of this situation to one which not so long ago existed in the relationship between buyers and sellers. The buyer had the advantage of the right of selection but the seller had an advantage in his knowledge of his trade and the article to be sold. Until the advent of the purchasing agent specifications were very much what time study has been in the past, theoretically practical but practically impractical.

It was not until both buyers and sellers found themselves fairly well matched in the art of horse trading that specifications were realized to be practically practical. So it is that as employers and employes come to realize that there is little either side can hope to gain through barter they will increasingly resort to time study as a basis for the adjustment of their difficulties.

It frequently happens that through one man's self-interest the ideals of another have been realized. By temperament and predilection I am all with the technician and I call this realistic side of the question under discussion to his attention for no other reason. If present immigration laws continue, as seems likely, it is inevitable that employers' efforts for reduction in cost and employes' efforts for shorter hours will force them to more and better time studies as the only safe and lasting basis of adjustment.

THE SPRING Meeting of the Taylor Society this year is to be held in Washington, May 9 and 10, at the National Research Council headquarters, 21st and B Streets. It is to be a joint meeting with the Personnel Research Federation and the general subject under consideration will be "Leadership."

At the morning session on May 9, the question "What is Leadership?" will be discussed. Ordway Tead, of the New York School of Social Work, will give a definition and analysis of leadership; W. C. Cowley, of the University of Chicago, will discuss leadership traits common in all situations, and General M. B. Stewart, of the West Point Military Academy, will talk on the Army's Contribution to the understanding and development of leadership. Dr. W. V. Bingham, Director of the Personnel Research Federation, will preside.

On the same day there will be an afternoon session given over to discussion of the question, "How Are Leaders Being Developed?" Leaders in education, in business and industrial concerns and in labor organizations are scheduled to take part in this symposium. Morris Llewellyn Cooke, President of the Taylor Society, will preside.

Graham Wallas, of the London School of Economics and Arthur H. Young of Industrial Relations Counselors, Inc., will address a dinner meeting on May 9 at the Hotel Powhatan, which is to be used as hotel headquarters during the meeting.

The general subject at the morning session on May 10 will be "Measuring Morale and Leadership Ability." Professor David R. Craig, of the University of Pittsburgh, will speak on methods and techniques for measuring the effectiveness of leaders, and those who have had experience in the use of these methods and techniques will take part in the discussion.

At the final session at two o'clock on May 10, a group, including C. R. Mann, of the American Council on Education; Dr. H. S. Person, of the Taylor Society; Miss Florence Thorne, of the American Federation of Labor, and Professor C. S. Yoakum, of the University of Michigan, will discuss "Next Steps in Research."

Those who wish to spend the week-end in Washington will be interested in special ten day return rates (fare and one-half) that are being offered by the Pennsylvania and Baltimore & Ohio railroads, on May 7. The trip to Washington must be made on May 7, but the return trip may be made at any time within ten days.

The Tenth Annual Convention of the American Council on Education, to which those interested are invited, is being held at the National Research Council May 6 and the morning of May 7.

Scientific Management in the Coal Industry[1]

A Report on the Development of Methods of Centralized Production Control by the Davis Coal and Coke Company

By **JEROME C. WHITE**
Assistant Engineer, Pittsburgh Coal Company

FOREWORD

ON account of its almost general acceptance and use by other industries, particularly the automotive industry, and the big part it has played in their orderly development, it was felt that scientific management must have something of value to offer the coal mining industry. Believing that one way to find out what it had to offer in the way of possible solutions for operating and management problems, Mr. R. P. Maloney, Vice-president and General Manager of the Davis Coal and Coke Company, whose mines are located in West Virginia, Maryland and Pennsylvania, authorized an examination or study. The complete study covered many of the phases of scientific management but the one chosen for the first installation was centralized production control.

The choice, I believe, was a wise one because it had for its purpose increased productive effectiveness and it intimately touched upon the work of those producing at "the face"; those whose departments supported the miner at the face, and finally, the men in charge of production and costs.

I owe an expression of appreciation to Mr. Maloney for his executive assistance; to J. M. Carmody, at that time Vice-president in charge of industrial relations, for help in the design of the chart and methods used; to the engineering and production departments, including the superintendents and mine foremen, for their co-operation and interest. Even to the men in the mines I owe something because no one opposed this apparently unseemly intrusion into the daily work that they had a right to think they had been doing quite effectively for years.

Production Control Chart

This production control chart was a test of centralized production control in the application of scientific management to this company's operations. It was part of a searching test to see if scientific management offered anything in the way of possible operating and management economies for this particular company. By the use of this chart the management was able to have direct contact with and immediate control over every operating function that affected costs and production in each of the mines included in the test, and eventually in all of the mines in a division. By a previous arrangement a mine's operating costs were known in the general office before nine o'clock of the day following. This method had already been in use before the chart was started, and fitted into the general plan of control.

By exact control over production I mean control over every producing unit that entered into the general production and management organization of the division. This control, exercised by the general superintendent's office, extended clear to the miner at the working face. The old idea that the miner at his work is an islolated character as to control and supervision was dispelled. By means of this chart intimate contact was made with him and almost every action he performed recorded. The man who handled this chart during a day's work performed functions similar to those of a train dispatcher on a railroad. It became, as it were, a living and moving chart depicting almost every move that was made in a mine during the day. It was a living, moving, and accurately reproduced action record.

On this chart, the first column is Heading Symbol. Under this heading was placed the division or district of a mine served by one gathering unit and its crew. The next column heading is Place Number, or the room number in which the miner and his

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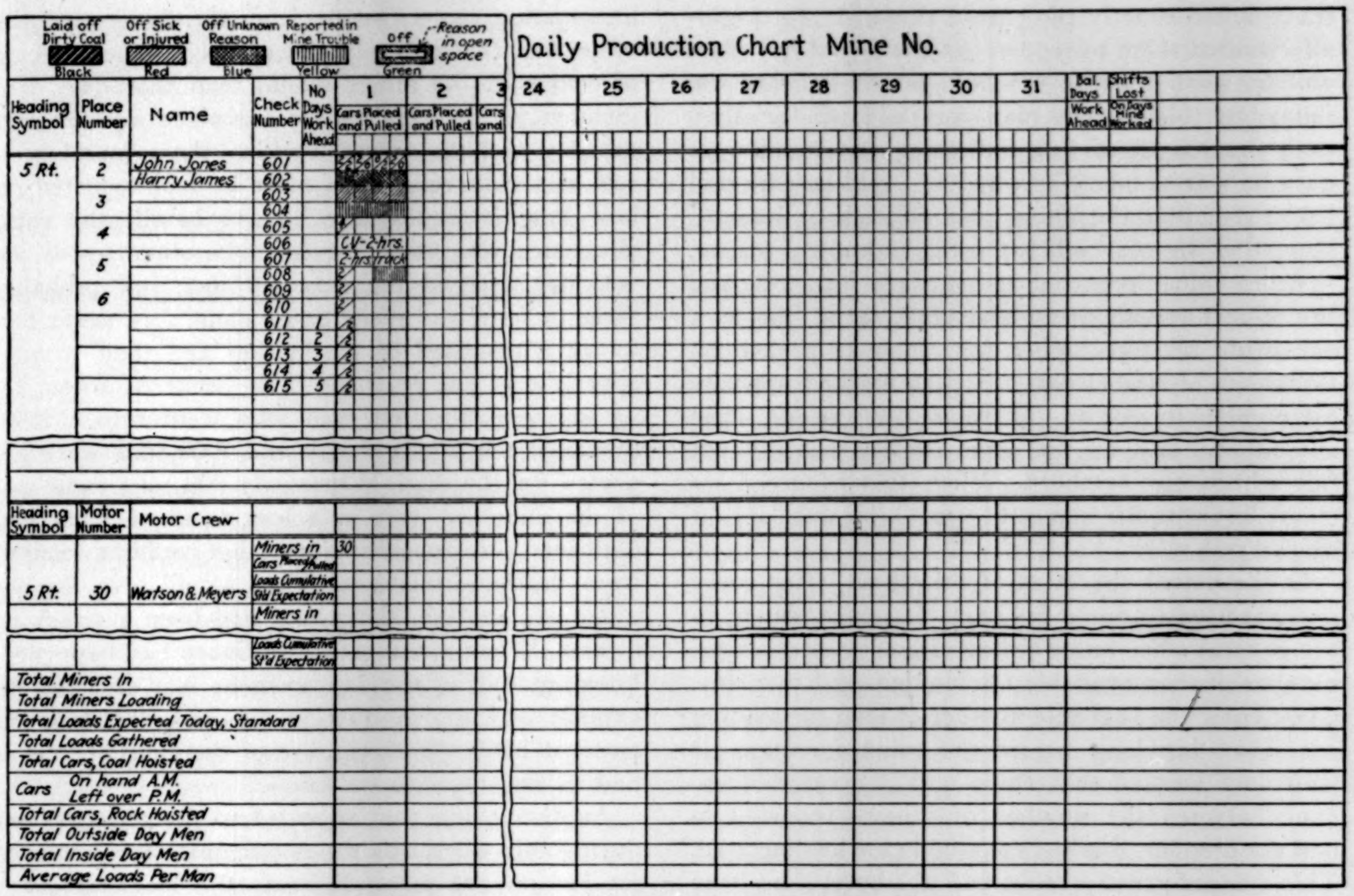
[1] A paper presented at a joint meeting of the Management Division of the American Society of Mechanical Engineers and the Taylor Society, New York, December 9, 1926.



Laid off Dirty Coal ▨ Black
Off Sick or Injured ▨ Red
Off Unknown Reason ▩ Blue
Reported in Mine Trouble ▥ Yellow
Off ▭ Green — Reason in open space

Daily Production Chart Mine No.

Heading Symbol	Place Number	Name	Check Number	No Days Work Ahead	1 Cars Placed and Pulled	2 Cars Placed and Pulled	3 Cars and	24	25	26	27	28	29	30	31	Bal. Days Work Ahead	Shifts Lost On Days Mine Worked
5 Rt.	2	John Jones	601														
		Harry James	602		▩												
	3		603		▨												
			604		▥												
	4		605														
			606		CV-2hrs.												
	5		607		2-hrs track												
			608		2/												
	6		609		2/												
			610		2/												
			611	1	2												
			612	2	2												
			613	3	2												
			614	4	2												
			615	5	2												

Heading Symbol	Motor Number	Motor Crew		1	2	3
5 Rt.	30	Watson & Meyers	Miners in	30		
			Cars Placed/Pulled			
			Loads Cumulative			
			St'd Expectation			
			Miners in			
			Loads Cumulative			
			St'd Expectation			

Total Miners In
Total Miners Loading
Total Loads Expected Today, Standard
Total Loads Gathered
Total Cars, Coal Hoisted
Cars On hand A.M. / Left over P.M.
Total Cars, Rock Hoisted
Total Outside Day Men
Total Inside Day Men
Average Loads Per Man

Figure 1

COMPLETE CONTROL BY DIRECT CONTACT

Control by means of this chart is obtained through direct contact with production centers—straight line production methods. The official in charge of production has immediate contact with each of the service organizations. As shown on the organization chart these exist to support production. Communication is afforded by adequate telephone service.

"buddy" worked. The next column is Name, which is divided into two sections. The reason for this is that two men worked in a room. Then follows the Check Number, under which heading went the check numbers of the men working in this room.

The column following this is Number Days Work Ahead. It was intended that as every room was started from a heading it should be given an estimated life in days. A room starting up might have an estimated life of fifty days; then for every day that this room worked its life would become less; for example, the prospective life of the room would be forty-nine, forty-eight, forty-seven days, and so on, as each day decreased its life.

The purpose of this was to co-ordinate the work of the production and engineering departments in order that adequate plans for future operations might be made and so scheduled as to stabilize production by balancing advancing and retreating work. Scheduling of miners so that they might know several days in advance where to go, without loss of time, as each place was finished was also a desired goal. It was intended that this information should form the basis of a budget system in which production and expenditures would be scheduled for a year ahead.

The next general sub-division of the chart is Days of the Month. Each day is divided into four parts. It was originally intended that the motormen serving this section should make reports at interval of two hours. This idea of two hours was later made to fit the convenience of the motormen. When everything was running well the interval was seldom longer than two hours, but the time of reporting was made to suit their arrival at a side track. It so happened that their time of arrival at the side track suited exactly the period at which we originally wanted them to report. At the top of the chart will be seen a set of symbols which indicate the following: black, that man was laid off for dirty coal, the length of line indicating the number of days he was to be off or when he could be expected back; red, that the miner was off sick or injured, blue, that he was off for some unknown reason. When a miner reported at his place for work and the mine foreman or an assistant placed him as a substitute on some other job, such as brakeman, trackman, or timberman, this was marked opposite his number in yellow. There were occasions when a man was laid off for some reason that did not fall within our symbols. When this occurred we wrote opposite his name the reason he was laid off or stopped work.

In the actual operation of this chart, after every one got used to doing his part, the management in the general office knew before nine o'clock the total number of men available for loading coal that day. They knew the available number of men for loading coal that day long before the mine foremen. It was soon learned that there was a great discrepancy between the number of miners reported in and the number of miners available for loading coal. This was information that had not heretofore been available because it had always been impracticable to get.

This information was of valuable assistance in setting standards. Standard here means the expected production of a miner; of a section; of a gathering unit, and finally, the expected production of a mine. To illustrate how closely it was possible to estimate the standard or expected production, after a little practice we could estimate within a few tons the mine output and do this for a mine with a production averaging from 900 to 1,100 tons per day. The same thing applied to the number of cars hoisted.

The mine foreman and superintendent were, of course, responsible for the day's output. They were expected to come up to a standard in their production. But the thing that appealed to them was that our standard was thorough, because it was based upon actual conditions; a mine was not charged the equivalent tonnage of one man when he was not available for loading coal. After the chart had been in operation a week an allowance was made for miners who were loading rock. This information came directly from the miner, and the mine was charged only the actual number of cars of coal that the miner would load that day. For instance, if the standard for one place was ten cars per day and the miner working there found himself in a clay vein, then, after he had reported on how long it would take him to handle the rock, allowance was made for this. In other words, he was not charged ten cars per day, but probably three or four, and often times none. We never had to set a standard of production and then wonder why it was not reached. This occurred when, let us say, one hundred men who went into a mine averaged ten tons per day and 1000 tons were expected for the day. When only 900 tons came out of the mine we were at a loss to know what had happened. No specific information could be secured from the mine foremen. They would give the obvious explanation, that there had been a wreck or a cave. When nothing extraordinary had happened, however, during the day, even he was at a loss to explain why the production was only 900 tons instead of 1,000. With the use of the chart we never had to ask, because we knew.

Another thing that appealed to the management during this work was the opportunity for increased production per man. It costs the management a certain amount per man to keep a man at work and every ton that a miner can load and does not is a direct loss to the company. The chart pointed out a new field for increased production per man and guided movements toward greater efficiency. For instance, we were able to pick out all the low producers. The next thing was to find out why a man was a low producer. It costs just as much in overhead to keep a low producer in a place as it does a high producer. The output of the low man is so much higher in cost per ton than that of the fast man, and is reflected in the ultimate cost per ton.

It was a common complaint of the miners in every district, and this district was no exception, that they were not allowed to make big earnings because they could not get cars. I can cite instances where stragglers would come out of the mines at noon, one o'clock, two o'clock or three o'clock, and if they were asked why they would invariably say that they could not get cars. It was known that they were low producers but no records had been available heretofore for disproving their statements.

We had also the problem of grievance committees that took up with the management cases growing out of poor car supply, and, what is worse, of unequal supply. The management then had to face charges not only of inefficiency, but also of favoritism. The unfortunate part of such cases was that there were no records to refer to, and the only evidence that could be presented was the word of the miner and the word of the mine foreman, with the result that the man deciding the case took his choice. After the chart was put into operation it was an easy matter to file it at the end of the month and there was no longer any comeback, as the number of cars that were offered to a miner and the number of cars that he actually loaded were recorded on the chart.

The motorman on his first trip up the heading places, let us say, two cars. It is a custom for the motor crew to examine every place in its heading each morning to see if the men are at work and what they are doing. Our inspection, therefore, did not put any extra work upon them.

Let us cite the motorman's first report in the morning. It would read somewhat as follows:

Left sidetrack 7 A. M. with thirty empties. Check No. 601, placed two and pulled two; Check No. 602, not in; Check No. 603, not in, sick; Check No. 604, not in, brakeman today; Check No. 605, placed four cars; Check No. 606, clay vein two hours, no cars until noon; Check No. 607, placed two cars and pulled two; Check No. 608, track torn up by cutting machine two hours; Check No. 609, placed two cars; Check No. 610, placed two cars. Arrived at side track 8:10 A. M. with thirty loads.

The report given here is, of course, an assumed one, but it shows the wide range of flexibility, and the number of varying conditions that can be covered by a few symbols, such as "clay vein, two hours," and so on. The loaded trip report would be made up of the cars loaded early in the morning and those placed the night before, including loads left over from the night before. These reports were posted directly to the chart by the man receiving them from the motorman. He used a telephone with the transmitter and receiver on a single unit, which left his other hand free to make such notations as were necessary. It was intended later to get this man a head set, such as is worn by telephone operators and train dispatchers, in order that both of his hands might be free.

We now come to the haulage division of this chart. The first column is Heading Symbol. Under this was put the number of the entry or heading which a gathering locomotive served. This agrees with the heading symbol used on the miner's division of the chart. Next comes the motor number and the names of the crew. The space given to the motorman is divided as follows: Miners In, Loads Pulled, Loads Cumulative, Standard Expectation.

The division of the column under the date is the same as the miner's column; that is, it is divided into four equal sections, each of which can either represent two hour periods, or the trips handled during the day. This can be arranged for the convenience of the one handling the chart. It will be noted all the way through that this chart is flexible enough so that it can be changed to suit conditions obtaining in one or any number of sections. Of course, uniformity is desirable, but so is convenience and efficiency.

The motorman, within a few minutes after giving his first report to, let us call him the production manager, knew his standard expectation for the day. This standard was not based on the total number of miners in his section, but upon the men available for loading coal that day. One thing that the motorman liked in this connection was the fairness upon which this standard expectation was based. In other words, he was not charged full tonnage for miners who were doing track work, rock work, or had bad roof to handle. The man who handled this chart and received these reports from the motormen was experienced in the mines and familiar with all conditions. Another feature that was brought out during this work was that no cars should be delivered to a miner while he was doing rock work. The production manager knew if cars were placed to this man in the morning. If the motorman happened to leave cars in a man's place, and he was not able to load them, this was known, and the cars were taken out and used elsewhere.

One section of a mine occasionally had an extraordinarily good day, with its full quota of miners in and all loading. Of course, at a time like this, the demand for mine cars was unusual. Now we can assume that in another section probably two or three men were on rock work and a full quota of cars not needed. The production manager, with this knowledge, could allow the extra cars to go to the heading which was most in need of them.

It should be noticed that no elaborate or particular attention was paid to main line haulage locomotives. The control over this class of service was incidental, as the production manager was in constant communication with the gathering motormen and the main haulage motorman got information as to the distribution of cars at any time it was needed. If anything unusual happened the production manager could call the main line motorman. For instance, if a trip of, let us say, forty cars was directed toward a certain heading and the production manager found there had been a wreck or delay, he had these cars switched over to another heading where they could be used more advantageously.

The production manager had a constant check over all the available haulage equipment. He knew at all times what locomotives were in the repair shop, and their exact status. As this man was primarily responsible for production and was the central unit around which the production and service departments revolved, it was his duty to see that no haulage equipment was allowed to remain without repair.

In regard to the simplicity of this chart it should be noted that totals are cumulative, that is, each motorman reported his total number of loads pulled, which was added to the previous number or the previous total reported so that the cumulative total at any time during the day was shown. This meant that at the end of the day's run the only work required was the addition of the cumulative totals reported by each gathering unit to arrive at the total cars gathered for the day. This total was used to check the tipple report of the total number of cars hoisted, which was in turn checked with the total or standard expectation for the day, which had been set at approximately nine o'clock in the morning. As this estimated total was based upon the men actually available for loading coal, it was recorded when a man stopped loading coal during the day. This solved the old question of how long a miner works. Such a record and such production control also assured the miner, who was really interested in his work and in loading as much coal as he could to increase his earnings, of all the cars he could load. All the delays and inefficiencies that had occurred during the day's work, and had hitherto been buried and unsuspected, were brought to light. This was not only a check on labor, but also a check on management.

We now come to the sub-division that sums up the whole day's operation, which is divided as follows: Total Number of Miners In, which is the number of men classified as miners who have reported for work in the morning. The next total is Miners Loading. There is a vast difference between the number of miners who have reported for work and the number of miners actually loading coal. Heretofore the information used had been the total number of miners who reported for work. This, of course, was the information that the mine foreman had, and he seldom knew the number of men who were taken by other section foremen to do track work, or to substitute for any of the other day labor. Aside from these demands upon the mine's tonnage men, there were other production loss factors; such as, clay veins, bad track, short cuts by the cutting machine, small and large falls of roof during the day. There was also the fact that men left their work without reason at any time during the day. Every one of these happenings was reported to the production manager almost as it occurred.

The next heading under this general sub-division is Total Loads Expected Today—Standard. This was the beginning of setting standards, based upon capacity, because, as it was previously explained, actual conditions furnished the basis for them. This was one phase of the chart that the mine foremen themselves appreciated. Heretofore when the general office had used the total number of miners reported in as a standard upon which to base an expected production, the mine foreman was put to it to explain why his tonnage did not equal the tonnage per man times the total number of miners reported in.

The next column is Average Loads Per Man. The production manager used this column to set his standards, and having run these figures over a period of time he was given very accurate information upon which to work. The next heading is Total Inside Day Men. This is the total number of day laborers reporting for work. The next is Total Outside Day Men. Next comes Total Cars Coal Hoisted; this column is sub-divided into Cars on Hand A. M. and Cars Left Over P. M. And then there were the Total Cars of Rock Hoisted.

It was intended that this chart should be the pivot around which would revolve the entire operating, management and service organizations of the company; in other words, the regular weekly conference was held around this chart for the purpose of enabling the general manager to check up on the operations of his staff, to lend them his assistance and point out to them the moves that would be of the greatest value to them. The every action of the entire organization was, as it were, photographed, and it was possible for the general manager to analyze conditions concisely. It might be stated that such a chart was self-analyzing. As one chart was made to cover an entire month's operations there were no sheaves of papers to handle, or masses of confusing figures, in checking over and analyzing any part of a current month. Everything stood out by itself.

The use of various colored pencils made each of the sources of production losses stand out, and I might say, speak for itself. For instance, the number of men laid off for dirty coal was shown. The number of men losing time on account of sickness or injuries was indicated by red lines. Then there were the blue lines running across the pages to signify men remaining away for some reasons that were within their own control, and the yellow spaces indicated production losses due to management. It was the aim of the management to keep down the yellow marks on this chart as much as possible, because time lost by the miner, which was not directly his fault, was charged to the management. For example, if a miner lost several hours on account of no track, a short cut, or other delays, the production manager marked this in yellow opposite his name.

A distinction should be made here between a good or fair standard of production and an average. Where there is a combination of high and low producers, the result is average production. The high man helps to bring the average up, and the low man pulls it down. Standards were not based upon

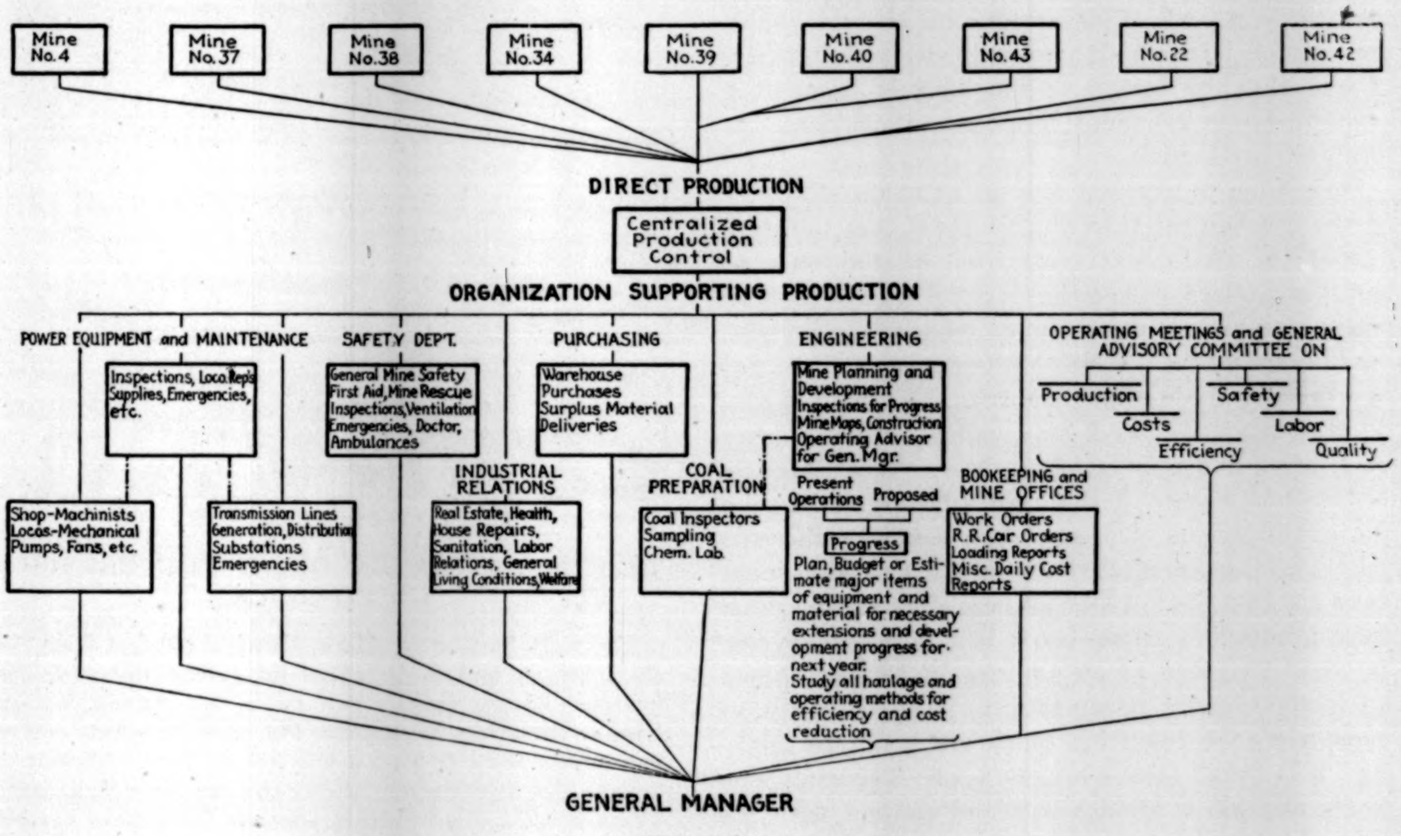

Mine No. 4
Mine No. 37
Mine No. 38
Mine No. 34
Mine No. 39
Mine No. 40
Mine No. 43
Mine No. 22
Mine No. 42
DIRECT PRODUCTION
Centralized Production Control
ORGANIZATION SUPPORTING PRODUCTION
POWER EQUIPMENT and MAINTENANCE
Inspections, Loco. Rep's Supplies, Emergencies, etc.
Shop-Machinists Locos-Mechanical Pumps, Fans, etc.
Transmission Lines Generation, Distribution Substations Emergencies
SAFETY DEP'T.
General Mine Safety First Aid, Mine Rescue Inspections, Ventilation Emergencies, Doctor, Ambulances
INDUSTRIAL RELATIONS
Real Estate, Health, House Repairs, Sanitation, Labor Relations, General Living Conditions, Welfare
PURCHASING
Warehouse Purchases Surplus Material Deliveries
COAL PREPARATION
Coal Inspectors Sampling Chem. Lab.
ENGINEERING
Mine Planning and Development Inspections for Progress Mine Maps, Construction Operating Advisor for Gen. Mgr.
Present Operations
Proposed
Progress
Plan, Budget or Estimate major items of equipment and material for necessary extensions and development progress for next year.
Study all haulage and operating methods for efficiency and cost reduction
BOOKEEPING and MINE OFFICES
Work Orders R.R. Car Orders Loading Reports Misc. Daily Cost Reports
OPERATING MEETINGS and GENERAL ADVISORY COMMITTEE ON
Production
Costs
Efficiency
Safety
Labor
Quality
GENERAL MANAGER

Figure 2

ORGANIZATION FOR PRODUCTION AND RESULTS

By making the official in charge of centralized production control the one responsible for production and costs, all the other departments become in the nature of supporting units. Responsibility for the adequate support given production by any of the service departments can be definitely located by the operation of the production control chart, the object of which is organization for production.

averages. If a good miner could load ten cars per day, and it was decided that this man was an exception, then the expected standard for another man was put at about six cars per day or what he was physically able to load. All those who loaded less than six cars per day were not considered normal miners. They may have been old men, have had places in which they could not load this tonnage, or they may have been lazy, indifferent or inefficient. The willing but inefficient man, of course, can be helped. It was shown to the mine management that they should resort to every possible device for bringing up the production per man because it meant dollars and cents to the man and to the company. They were then in a position to try to bring up the tonnage of the low man, possibly willing but inefficient.

A by-product of this chart is an accident record that is well worth while. Coupled and shown in direct connection with the entire day's operations are the red marks. They showed in relation to operations, as no other system of reports could, the cost of idleness due to sickness and injuries. It was a safety lesson to the officials because it brought home to them the cost of accidents in terms of production.

Permit me to say just a word as to the practical or the mechanical side of this chart, the ultimate purpose of which was centralized production control. Centralized production control means that all production and all departments responsible for production are under the direct supervision and control of a central production executive. The central production executive, as I have called him here, may be either a manager or an engineer. What his title is does not matter. I shall not attempt to describe the qualifications of a man who could handle this job. The fundamental characteristics that he must have are two; he must be an organizer and he must have production sense, for it is a high-caliber job. It could be given to an engineer if he had shown an inclination for organization. It is distinctly an executive's job requiring quick and accurate thinking; it is by no means a clerk's job. The man who holds this job is always in direct contact with the mine foreman and the motormen, and he must by his ability be able to hold the respect of these men directly under his instructions and orders.

The mine foreman should be considered in relation to this new executive. He should begin to realize that in this day of specialized departments he must become more and more of an organizer. As a mine foreman becomes a good organizer, rather than a technician, so he becomes a leader instead of a boss; as he decides to fit himself into these new conditions, so will his value in this new system of organization increase. In this sort of an organization under centralized control he has a definite

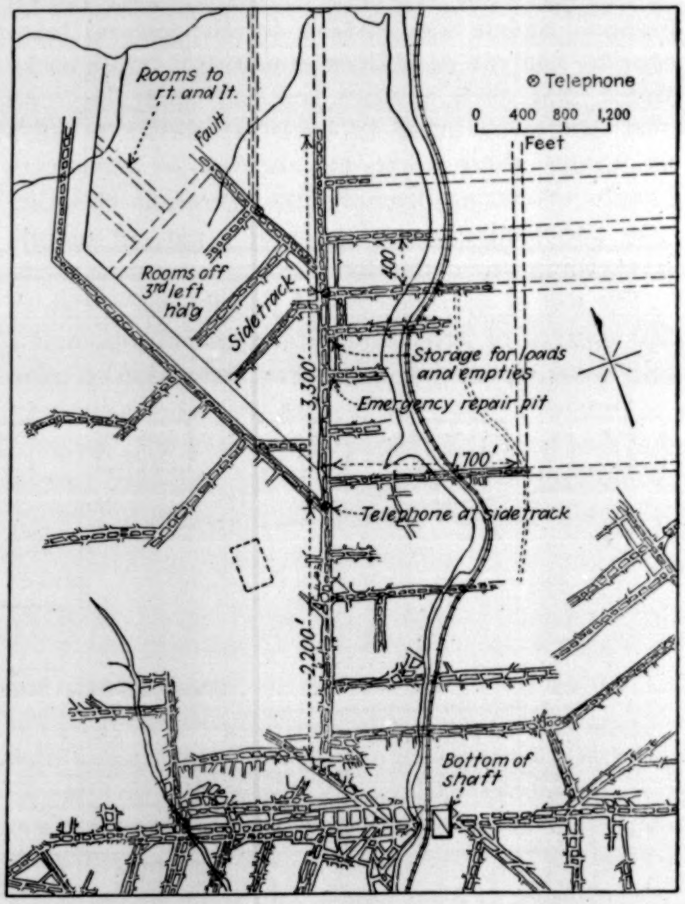


Figure 3

TELEPHONES BREAK DOWN THE BARRIERS OF DISTANCE

The main heading in this section is 5,500 feet from the shaft bottom and projected to go several thousand feet further. Entries from which rooms are turned average 1,500 to 2,000 feet in length. The room in which one or two miners work is from a few feet to 200 or 300 feet in length. On this diagram the rooms are sixty feet apart. The production-control chart accounts for a large number of miners because only the motormen serving them report and therefore both the miners, as the primary producing units, and the motor crews, upon whom their production immediately depends, are under control. One motor crew will handle from ten to thirty miners. About 130 men work in the section shown.

place. It tends only to make his work more effective, and not to displace him.

The ultimate object of this experiment was the complete reorganization of management along scientific lines. By the use of this production-control chart the organization structure at all of the mines was to be rearranged. The mine foreman at each individual mine was to remain in the same position, but it was necessary to raise the requirements for the job. It required some training to do this. The foremen were to be trained in business practice, organization and management principles, rather than in technical subjects, such as formulae of ventilation, and so on. It was understood that these men had prepared themselves in the legal and technical requirements of their jobs before they had been employed and the company undertook to train them in business and modern industrial management principles, giving out no more management ideas than they were able to absorb and accept by their own reasoning. It was our job to sell the thing to them, not to force it upon them.

In preparing the ground for the successful future of scientific management in this company a Foreman's Training Course was designed. It was not expected that scientific management in its entirety could be put over in a few months or in a year. The study of men in this problem is as important as the study of operations. Through proper training and proper preparation of the way, operating officials will come more and more to look upon scientific management, not as a passing fad of the times, but merely as good management. Names or titles mean nothing—results count.

Summary

Scientific management offers immense possibilities for operating and management economies by increasing production effectiveness in the coal mining industry. Scientific management will make greater progress in our industry if those individuals and organizations interested in management in the more efficient industries will help us by encouragement and interest. If our industry will investigate and examine the philosophy, rather than stand in awe of the apparently complicated structure and mechanical methods, it will find that scientific management offers a solution to its problems. I believe that one of the main reasons why scientific management, or the Taylor system, has failed to make progress in coal mining is that heretofore the details have been mistaken for the principles. Mr. Taylor himself warned against this. As I see it, the whole purpose of scientific management is to co-ordinate the efforts of management and labor for more effective production, which means greater prosperity for the employe and the employer. Its principal aim is greater effectiveness through greater co-operation, for all the parties concerned in industry. The coal industry, with its frequent difficulties in co-operation, is particularly in need of such increased effectiveness.

This industry cannot lift and transplant ideas, methods or forms from a very efficient industry and make them successful as Scientific Management. But if it will examine and investigate the reasons for the existence of the details it will devise very effective methods to suit the industry's own peculiar conditions, breaking down the barriers of relatively great distances separating comparatively isolated producing units, miners or loading machines.

The coal industry is ripe for the introduction of scientific management, particularly in those districts where mechanical loading is making rapid progress. Mr. J. B. Pauley, President of the J. K. Dering Coal Company, said at the Illinois Mining Institute that we should not longer rest upon our laurels as the most efficient coal producers of the world, but should become one of the more efficient industries and set the standard of efficiency to be reached by other industries. At the same meeting Dr. L. E. Young, General Manager of the Union Collieries Company, whose Kathleen Mine in Illinois is completely mechanized, said that heretofore tradition had dominated our policies and methods to a greater extent than was good for the industry.

The nearer a coal mine approaches complete mechanization the nearer it approaches factory conditions, but centralized production control is as applicable to that part of the industry which employs hand labor for mining and loading coal as it is to the mechanized mines. The industry needs scientific management and, if I may judge by the statements of Mr. Pauley and Dr. Young and by my association with Mr. Maloney—and all of these men are executives of large coal mining corporations—the industry not only needs it but wants it; not its mechanics and details as developed in manufacturing plants, but its ideals and philosophy.

Problems of Bank Organization[1]

Their Solution Through the Practical Application of the Principles of Management

By **HARRY ARTHUR HOPF**
Senior Member, H. A. Hopf and Company, New York

I. Introduction

A DISCUSSION of the problems involved in modern bank organization logically calls for the presentation of certain introductory considerations which have to do with the broad general background. It would, however, transcend the practical limits which should be set for this discussion if extended reference were to be made to the historic aspects of banking or if it were attempted to outline the forces which have been at play in the past few decades moulding the highly effective and necessary instrument known to the present day business world as the modern bank. Reference to the evolution of the banking institution in recent years will therefore be confined to such statements as are deemed necessary to an understanding and appreciation of what is to be presented in these pages, and emphasis will be placed upon the important features of a well-rounded banking service as they have developed in the course of time.

In presenting considerations along these lines to a body of engineers, it may be well at this point to state that the attempt will be made to observe throughout the general viewpoint of management engineering; such interpretations thereof as are made represent the author's experience in introducing principles of industrial organization and management into the banking field.

However simple it may be to distinguish between organization and management in theory, in attempting to translate theory into practice management and organization go hand in hand. Without management to motivate it, organization is a dead thing; without organization, management is scarcely worthy the name. Therefore, in preparing this paper from a practical viewpoint, it has seemed fitting to envisage organization in its broadest aspects as both the tool and the work of management; the work in that it tends to become a completed structure designed to carry an ever changing load, and the tool, in that through it management animates that structure.

Viewing organization in the former sense, the banker is the supreme co-ordinator who faces the formidable task of effectively integrating the elements which go to make up the multiple services known as the modern bank, and in the latter sense he is the leader who guides and motivates the efforts of those concerned in rendering those services, to the end that the complex mechanism which he has created may function smoothly and at reasonable cost.

At the beginning of this century there was probably not a bank in the United States the staff of which numbered in excess of five hundred persons. In point of fact, only the very largest banking institutions in the country even approached this figure in size of personnel. The overwhelming number of financial institutions had probably less than one hundred employes, a condition which possibly still holds true today, but which is to some extent overshadowed by the fact that there are scores of banks in existence at this time whose staffs number between one hundred and five hundred employes and a number of banking institutions in the larger cities whose personnel exceeds the maximum stated. Probably a dozen or more banks in the United States at the present time employ over one thousand clerks.

Why have banking institutions increased in size to such an extent and what are some of the organization problems which have developed as concomitants of this unparalleled growth in the history of financial activities?

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[1] A paper presented before a joint meeting of the Management Division of the American Society of Mechanical Engineers and the Taylor Society, New York, December 9, 1926.

With respect to the United States, the view may be expressed that since the beginning of this century there has taken place an expansion of commercial and financial activities which not even the most sanguine and optimistic student of the field would have dared to predict. In the years immediately preceding the outbreak of the World War, several of the largest financial institutions had already definitely and purposefully established themselves in foreign countries and, with the expansion of trade and other relations between the United States and the world at large, a financial structure had been brought into being which, from the point of view of size, magnitude of operations and diversity of interests, could well challenge favorable comparison with the banking equipment of any other country in the world.

In 1914, shortly after the outbreak of the War, the Federal Reserve System came into being, and the enormous growth experienced by this semi-governmental organization, with its all-pervading influence over the financial affairs of the country, has had much to do with bringing into focus the problems of bank organization which it is the object of this paper to discuss.

Today it may be safely asserted that banks as a whole have reached a point in their development where the extent, diversity and intricacy of the work carried on by them require that special consideration be given to problems of organization, for only through the effective solution thereof will the banks be enabled to meet the peculiar requirements with which they are faced in the accomplishment of the daily operations of the business.

It is, of course, apparent that individual banks differ greatly in the character and extent of their organization problems, and that, correspondingly, the point of attack must be varied if proper solutions to these problems are to be arrived at. On the other hand, it should be recognized that, with the growth of banking institutions, and, in fact, of business in general, there has been built up a great body of principles which, scientifically constructed and thoroughly integrated, may be described as the art of management. Sufficient experience with this new force has been developed in the past two decades to justify the statement that management principles admit of universal application and may be worked out as effectively in the banking field as in any other department of human endeavor. Consequently, even though the organization problems of banks may vary, either in degree or in kind, their solution may be discovered by the application of tried principles and methods with the assurance that economical and effective results may ultimately be achieved.

In approaching a discussion of the subject of bank organization, it should therefore be recognized that the logical point of departure in attempting a solution of a given problem in this field is the practical application of the principles of management.

II. Banking Functions

It has been said that a bank is primarily an institution in which the funds of the public are safeguarded and stored and that it affords quarters for an organization by means of which the financial interests of the community are served. In fulfilling this function, the bank plays a vital part in the business and industrial development of the country since activities in these fields cannot be developed without the co-operation of the financial organization which forms their support.

From the layman's point of view this definition of a bank is doubtless satisfactory, but the banker would go further in describing the work and purposes of the institution over which he presides. He would doubtless segregate its manifold activities into their separate elements and, while having well in mind the broader significance of the bank from the standpoint of economics, he would probably describe its functions somewhat in the following fashion:

1. To receive, account for and disburse cash;
2. To make loans;
3. To invest monies;
4. To receive and collect items;
5. To transfer funds;
6. To underwrite and market bonds and securities;
7. To buy and sell foreign exchange;
8. To act as trustee, administer estates, etc.;
9. To receive, invest and disburse funds deposited as savings,
10. To operate a safety deposit business either as a department or a separate company.

Whether a given banking institution be large or small, its activities may be broadly segregated into the elements stated above. These are briefly described below so that their bearing on the problem of organization may be understood.

The average layman confines his dealings with banking institutions quite largely to participation in the first function listed, namely, the receipt, accountability for and disbursement of cash, including checks. He is usually entirely familiar with the operation involved in depositing his checks and currency with the receiving teller, in withdrawing either part or all of his deposit from the paying teller, either by check on his account to the order of himself or others with whom he has business dealings or by presentation in person to the paying teller of a counter check signed by him. Finally, he is interested in the monthly statement of the condition of his account which is mailed to him by the bank on the first of each month and which is of assistance to him in the ascertainment of his financial status.

We may go a step further and say that most persons who have dealings with banks have at one time or another availed themselves of the facilities of the bank for making loans. As borrowers of the bank's loanable funds, they have come in contact with the officer whose responsibility it is to judge of the wisdom of extending the bank's credit to the borrower. Doubtless at times they have been brought somewhat abruptly and perhaps even brutally into conflict with the broad general considerations of policy which the bank, in justice to itself, its other depositors and the community, must observe in the matter of granting or withholding credit. The problem of passing on credit is so important a part of the loan function that in practically all but the smallest banks it is treated as an independent function. The work is performed by credit specialists who devote all of their time and energy to the gathering of credit information, analysis of financial statements, etc. It is upon their judgment that loan officers approve or disapprove applications for loans.

Less familiar, on the whole, is the average business man with the third of the functions listed above, namely, the investment of monies. After the bank has accepted the funds of its depositors entrusted to its care and has met the requirements for extending credit, it faces an investment problem in placing its available capital and other funds in such a manner that, while serving the purposes of the community and remaining, generally speaking, in liquid form, they will produce a return to the bank in the shape of interest earned. Such earnings must be counted upon to help defray current operating expenses, to remunerate the capital invested by the owners of the bank and to insure the maintenance of a surplus fund so as to protect still further the safety of the institution.

In another sense, the investment of monies implies that the patrons of the bank, having confidence in the financial ability of the management, consult the latter with respect to the safe investment of their own surplus funds, and this activity brings the public into contact with other officials whose duty it is to keep themselves informed and to apply sound judgment to the determination of what constitutes safe and productive investments.

The fourth function, that of collection of items, relates to the thousand and one daily transactions into which the bank enters in behalf of its depositors who entrust to it checks, drafts, notes and other forms of negotiable instruments for transmission to all parts of the country and to foreign lands. These must be presented for payment to the makers of the instruments, collection of the funds must be undertaken, and they must ultimately be credited to the accounts of the bank's depositors. It is in this field that we find perhaps the highest exemplification of the opportunity for service which the modern bank enjoys and a demonstration of the effective manner in which the entire financial fabric of the country is knitted together so as to make it as one in its service to the business world.

Closely related to the work of collecting items is the function involved in the transfer of funds. The development of this function has been materially accelerated in the past decade, not alone through the relationships built up as between banks themselves all over the country, but also through the establishment of the Federal Reserve System with its daily settlement of balances through the medium of the Gold Settlement Fund in Washington. It is a far cry from the disorganized conditions of fifty years ago, and the unwillingness or refusal of banks in one part of the country to accept at par funds transferred from other parts of the country, to the present highly effective and practically instantaneous method of transfer of funds between widely separated points by offsetting debits and credits and making the actual shipment of currency or gold practically unnecessary. The average business man has become so accustomed to accepting in a matter of fact way the existence of facilities for transfer of funds afforded by modern banking organizations, that he quite fails to realize and appreciate the long road over which the banks of the country have had to travel in order to make such a service an accomplished fact.

In the underwriting and marketing of bonds and securities, the sixth of the functions listed, only those business men who deal with financial affairs of larger importance have been able to acquire an understanding and appreciation of the services which the modern bank offers. The mobilization of the surplus funds of the community and their attraction to favorable opportunities for investment afforded by the securities offered by commercial, industrial and financial institutions, has had perhaps the greatest influence of any single factor in the upbuilding of the business structure of this country, with its consequent effect upon the elevation of the standard of living and the promotion of the well being of the American people. While other countries, owing to a much longer history of development with respect to industrial and commercial enterprise, have accomplished remarkable results in the organization of their available resources, no country in the history of the world has made faster progress than has this one in recent decades. It is due primarily to the development of the banking organization of the country and the part it has played in promoting business enterprise that the United States has assumed a position of financial leadership in the world today.

The purchase and sale of foreign exchange, the seventh function listed above, has only in the last twenty or thirty years reached the level of great importance which it now occupies. Its intimate connection with the development of international trade relations is obvious, for, unless banks had organized and established effectively the mechanism for the handling of foreign exchange which they now possess, it is safe to say that the world wide business operations which the genius of the American business man has brought into being in recent years could not have been undertaken and the exploitation of foreign markets would have been frustrated.

The eighth function, that is, trusteeship, the administration of estates, etc., has brought into active play the opportunity of the modern bank, by overcoming practically all of its limitations as an artificial entity, to serve the community in numerous fiduciary relationships and to provide a service along this line which, freed from the defects inherent to natural persons, is characterized by uniform standards, practically unlimited longevity and persistence of application of sound principles, including scrupulous observance and care of the manifold and complex interests entrusted to it.

The savings function, the ninth listed, was formerly confined practically altogether to institutions established to meet that particular need. In recent years, however, this function has been added to the activities of most of the larger as well as many of the smaller banks of the country. This function is separate and distinct from all the others and not in any sense an esential part of the work of a commercial bank.

The tenth and last function referred to, namely, the operation of a safety deposit department, is one which most banks find it necessary and profitable to exercise. However, this function, which involves the use of vaults, is usually segregated from the other activities and performed by a separately incorporated company.

This, in brief, is a picture of the functions which the modern banking institution is called upon to perform. The problem which faces each bank is to translate this abstract picture into concrete reality, to mesh all the gears and actuate the different parts of the machine, to have a well founded realization of the conditions of competition and of changing economic circumstances under which its work must be carried on, and to realize, above all, that the dominant factor in the progress of any business institution is the extent to which sound principles of management are successfully applied.

III. Planning the Structure

A. Classification and Functionalization of Activities

It is sound procedure in all organization work, first to recognize clearly the functions which an institution is called upon to perform and then to devise, on the basis thereof, a simple, elastic and expanding organization framework or structure with the following characteristics:

a. Subdivision of the work to the point where it will be brought within the compass of performance by people of average ability;

b. Proper relative evaluation of the operating units and grouping of these along related lines;
c. Existence of clear lines of authority, responsibility and reporting relationships, together with effective control, direction and supervision.

The functions of a bank have already been briefly outlined and, while every bank does not include all of them and some stress one function and some another, those enumerated may be regarded as typical. Lest it be thought that in describing these functions in the early pages of this paper the writer is working backward from a conclusion, it should be stated that unlike many types of commercial or industrial enterprise, banking has never had any difficulty in drawing clear cut lines of cleavage between its various activities. Because of their very nature, the necessity for dispatch and the many different types of service rendered, banks have been forced from the beginning to recognize the need for specialized skill in the performance of each service, and, consequently, to separate their work along distinct lines.

The historical development of banking, its growth step by step from the simple function of loaning money against merchandise as security, has had much to do with this organization phenomenon. As wings are added to a building to meet the requirements of growth, so new services or functions were from time to time added to banking to meet the requirements of commerce and industry, until today, in the typical large commercial bank, we find a great many different and dissociated services.

It should be understood that the creation of these services was not the culmination of an evolutionary plan whereby they grew naturally out of the already existing nucleus and, therefore, were perfectly integrated with it, but rather they were accessions forced by the exigencies and growing demands of business and the determination of bank management to seize opportunities as they presented themselves and to remain superior in competition.

The problem of classification of activities, therefore, which presents difficulties in many industries, was practically solved from the beginning in the case of banks; the differences between individual institutions in this respect correspond to the differences in the number of services furnished. The only angle of this problem which may be said not to have solved itself is that relating to such secondary and supporting activities as are recognized in accounting, purchasing, office and personnel service. We shall see later how the organization problem which these involved has been met.

In the very early days, when banking consisted largely of the cash function, the official commonly known as Cashier received, accounted for and disbursed cash. As the business grew, it became necessary to delegate some of this work to assistants, and positions now known as Paying Teller, Receiving Teller, etc., came into being. Since the work of these tellers was an outgrowth of the duties formerly performed by the Cashier, it was logical that the tellers should report and be responsible to the Cashier for the proper performance of their work.

From these modest beginnings we see the gradual acquisition of additional services or functions by banks. These additions, representing very small units of work at first, were naturally also placed under the control of the Cashier. In this manner it developed that the Cashier became the sole operating head of the bank, subject, of course, to the policies laid down by the Board of Directors and the President.

In the final analysis it was, of course, this latter official who was responsible to the Board of Directors for the carrying out of the policies laid down by it, as well as for the results achieved by the bank in making these policies effective. The President, however, did not occupy himself directly with the operating affairs of the bank, but usually delegated this work to the Cashier, reserving for himself the responsibility of making new banking connections so as to increase the business of the bank, passing upon the credit standing of prospective borrowers and directing the investment of the bank's surplus funds.

In line with the growth of business, the various units of work or separate services which had been added from time to time developed to the point where it became impossible for the Cashier to acquit himself satisfactorily of all of his responsibilities in connection with them. This led to the appointment of officials to assist the Cashier in his work and these officials, each assigned to a separate function, were called Assistant Cashiers.

Gradually, however, as the number of these Assistant Cashiers multiplied and the complexity and volume of the work increased, it became increasingly difficult for the Cashier to exercise proper executive follow-up over the varied fields of work which they performed. This fact and the need for specialized skill and technical training in directing the more highly specialized services of the bank, such as trusts, foreign exchange, loans and investments, etc., led finally to the complete separation of these functions from the sphere of the Cashier. As their size and importance warranted, they were placed in charge of a specialist who was given the title of Vice-President.

In the majority of large banks today, therefore, we find all specialized services under the direct control of a functional specialist, known as a Vice-President. From the operating standpoint each such service is headed by a junior official, variously known as Assistant Vice-President, Assistant Cashier, or sometimes, Assistant Manager. In most banks, irrespective of title, these officials report directly to the Vice-President in charge, though in many cases assistant cashiers report, also, to the Cashier.

This development could not fail to have an effect on the duties and responsibilities of the President as well as of the Cashier and, as Vice-Presidents were appointed to manage such functions as loan, investment, etc., responsibility for these particular branches of the work, formerly assumed by the President, was delegated to the Vice-President directly in charge. As a result of this development, the position of bank president, as we now know it, is largely one of liaison officer between the officers of the bank and the Board of Directors. It is the President's dual responsibility to interpret the policies of the Board to the officers and, on the other hand, to be accountable to the directors for the results secured by the bank in making these policies effective.

The cycle of adding to and subtracting from the work of the Cashier which has just been described, has, in most banks, left that official in practically the same position in which he was when the activities of banks were confined solely to the simple banking operations of receiving, controlling and disbursing funds. The bank itself has become virtually a combination of separate divisions, each one an almost complete, functioning unit.

B. Co-ordination of Work

It is obvious that such a vertical division of activities as described above creates within a single institution a number of line organizations with a full staff of executives and employes engaged in accomplishing the work of their particular function. Necessarily there is very little co-ordination of effort, very little uniformity of aim, very little in the way of standards of performance and a great deal of apparent duplication. Such organization faults are magnified through rapid and unbalanced growth, with its concomitant of grouping work around people instead of according to the logic of related elements.

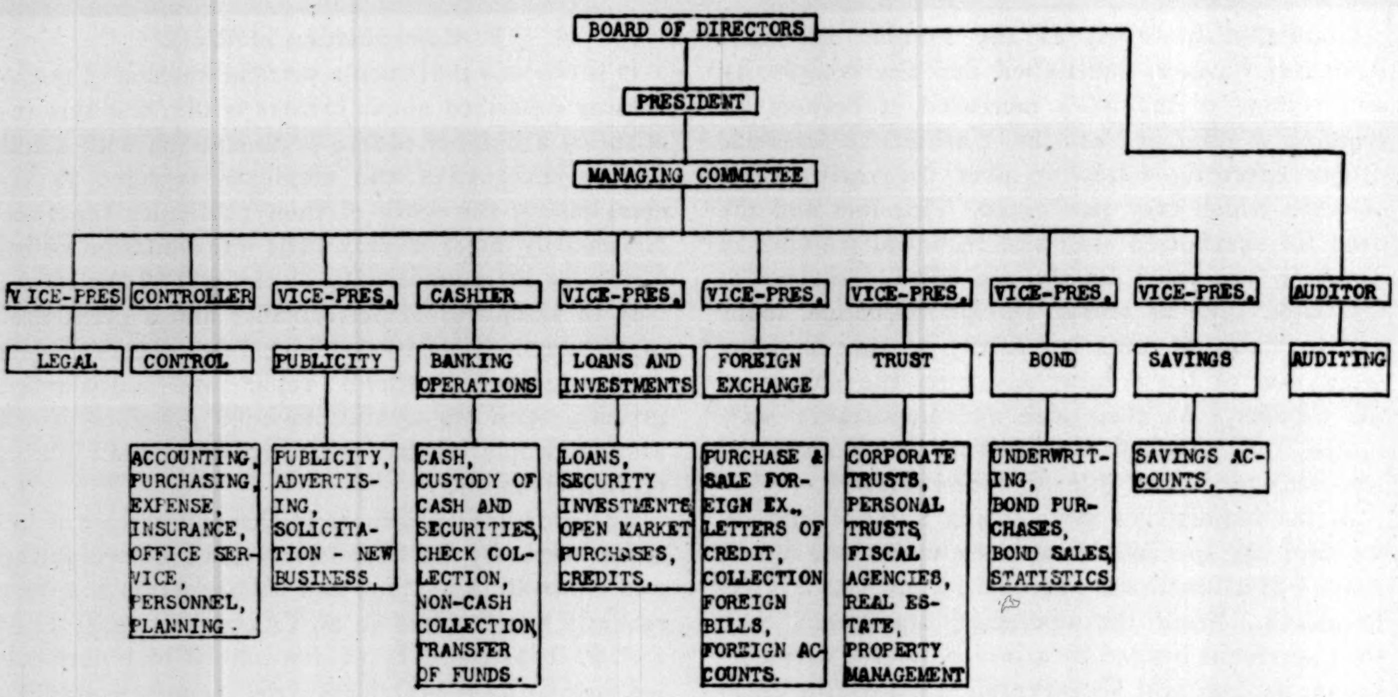
To overcome tendencies in these directions it became necessary for banks to create a co-ordinating and controlling agency, and this function has very recently been vested in an official known as Controller. It is the duty of this official to functionalize, insofar as is practicable, the secondary services such as accounting, office service, personnel, etc., previously referred to, which have heretofore not been given special attention in the development of bank organizations.

In addition to this, there is a distinct tendency to confer upon the Controller the responsibility for establishing definite standards of performance throughout the organization, for prescribing standard practices and approving or disapproving of procedures recommended by operating officials, as well as for being directly accountable to the President for the control of banking operations through the budget.

Into this group of more or less dissociated and independent functions which we have described as the bank organization, the position of Controller, therefore, brings a management force which exercises horizontal control and binds the separate parts together in unified and co-ordinated endeavor.

The chart reproduced on the following page is typical of the organization of a large commercial bank. It shows the functionalization not only of all the essential phases of banking, but also of the service activities brought together under the Controller.

If the problem of co-ordination of activities appears to be one of the most important in the organization of a bank where the work is performed as a unit in one location, it becomes even more acute in cases where the parent institution has extended


BOARD OF DIRECTORS
PRESIDENT
MANAGING COMMITTEE
VICE-PRES
CONTROLLER
VICE-PRES.
CASHIER
VICE-PRES.
VICE-PRES.
VICE-PRES.
VICE-PRES.
VICE-PRES.
AUDITOR
LEGAL
CONTROL
PUBLICITY
BANKING OPERATIONS
LOANS AND INVESTMENTS
FOREIGN EXCHANGE
TRUST
BOND
SAVINGS
AUDITING
ACCOUNTING, PURCHASING, EXPENSE, INSURANCE, OFFICE SERVICE, PERSONNEL, PLANNING.
PUBLICITY, ADVERTISING, SOLICITATION - NEW BUSINESS.
CASH, CUSTODY OF CASH AND SECURITIES, CHECK COLLECTION, NON-CASH COLLECTION, TRANSFER OF FUNDS.
LOANS, SECURITY INVESTMENTS, OPEN MARKET PURCHASES, CREDITS.
PURCHASE & SALE FOREIGN EX., LETTERS OF CREDIT, COLLECTION FOREIGN BILLS, FOREIGN ACCOUNTS.
CORPORATE TRUSTS, PERSONAL TRUSTS, FISCAL AGENCIES, REAL ESTATE, PROPERTY MANAGEMENT
UNDERWRITING, BOND PURCHASES, BOND SALES, STATISTICS
SAVINGS ACCOUNTS.

Note: Titles of officials given indicate those most likely to be found in a large bank. In trust companies, secretaries and treasurers would be assigned to some of the functions. Reporting to the senior officer will be found trust officers and assistants, assistant vice-presidents, assistant cashiers, etc. In smaller banks several of the above functions would be combined, each division being under the supervision of a junior officer.

its sphere of influence and operations through a number of branch banks, either local or foreign. In such instances an organization unit known as the co-ordinating office has been brought into being and its chief functions are to create and inspect standards, to co-ordinate and review, so that like activities in decentralized units may be brought up to the highest possible level of performance.

Another method of co-ordinating operations is illustrated by the practice of one of the larger New York City banks which, conducting its business through the medium of a parent institution supplemented by a small number of local branches, has worked out a solution of its operating problems in the manner described below.

The work of the parent institution has been divided into a number of definite functions, and in most cases all of these are reproduced in decentralized fashion in the local branches. The President and the two Senior Vice-Presidents form what for practical purposes is a Managing Committee, and eight other Vice-Presidents divide among themselves the responsibilities for administration of the various functions and branch organizations. In direct operating control of the latter are a number of Assistant Cashiers, each of whom reports to a specifically designated Vice-President.

Between these two sets of officers there are several Assistant Vice-Presidents, but in our discussion here we are concerned with only one of them, who functions as the chief co-ordinating authority. It is the responsibility of this Assistant Vice-President, with his staff, to inspect, analyze, co-ordinate, control and review operating results throughout the entire organization. Except in an advisory way, he does not influence determination of policies but, within the limits of the policies set up for the guidance of the entire institution, it is his responsibility not alone to see that the work is done accurately and with dispatch, but also to devise ways and means of improving the channels through which the routine passes and in general to work in the direction of accomplishing more effective operating results.

The organization chart reproduced on the following page gives a graphic picture of the relation of the various authorities in this institution to each other and in particualr of the relation of the co-ordinating officer to the entire organization.

Again, banks have endeavored to meet the problem of co-ordination of their activities through bringing into being what might be described as a counterpart of the modern factory or office planning department. This has usually been treated as a staff function and, consequently, has labored under the difficulty which faces all staff activities, namely, of being translated into practical effect through the line organization. In banking perhaps more than in any other field there has been resistance shown to such developments, because since time immemorial, the individual sub-divisions of the banking organization have been strongly departmentalized and this fact has naturally developed a point of view inimical to the successful application of the theory of staff functions.

C. Decentralization of Accounting

The centralization of service activities under a co-ordinating officer would, ordinarily, imply centralization of accounting work. Such centralization is usually found in commercial and industrial organizations. In banks, however, the necessity for dispatch, as well as the highly specialized and differing character of the accounting work performed in connection with the various departments, has made it practically compulsory, without regard to general principles of organization, to segregate the accounting activities, relating each as closely as possible to the particular department concerned.

For example, the accounting activities associated with the Foreign Department differ materially from those relating to the Trust Department, which are governed to a large extent by law. Both of them involve procedures varying from deposit accounting which, in its simplest form, consists of debiting and crediting the individual depositor's account.

But it is perhaps more the need for dispatch than the inherent differences in method which compels banks to carry on their accounting work in decentralized fashion. This need for dispatch may, indeed, be said to be the controlling element in the building up of bank organizations. When we consider the work of the cash and collection function of a bank, the importance of this element becomes apparent.

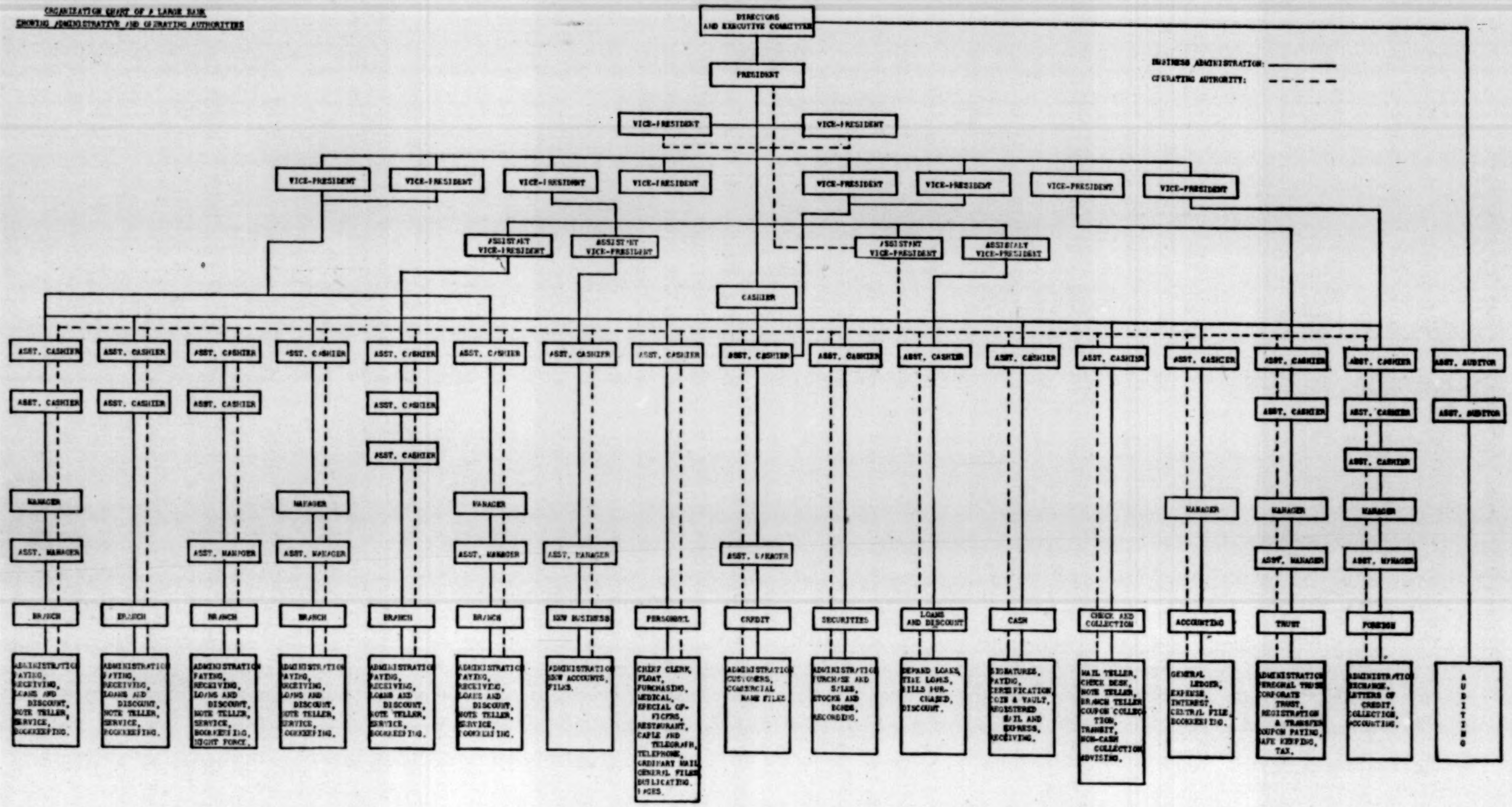
For example, it is necessary at all times to have available accurate knowledge concerning the credit balances in depositors' accounts. This means that monies deposited by customers with the Receiving Teller must immediately be credited to their accounts and that the accounts must be promptly debited for checks drawn against them. Otherwise, the bank would be in the position of refusing to pay checks when in effect the balance was on hand, or of paying out money when the account did not warrant it.

Moreover, since many of the checks deposited by customers are drawn on other banks, it is of prime importance to present these checks to such banks with the least possible delay. This must be done not alone because of the desire to render efficient service to customers, but for the even more important reason of securing the protection afforded the bank by converting such checks into cash before making payment to depositors.

Another example of the need for dispatch in handling items of this sort is the clearance of checks through the Clearing House. Under the rules of the New York Clearing House Association, all exchanges must be made by ten o'clock. Therefore, if checks are not cleared by banks at that hour, they must be held over for one day before the money can be collected. Because of the tremendous sums of money involved, this means, therefore, that banks in downtown New York particularly, receiving as they do the bulk of their deposits through the mail from out of town correspondents, face the necessity of preparing all such checks for clearance immediately upon receipt. To meet this problem the larger banks have organized night shifts and in a number of cases now operate twenty-four hours a day. This permits them to take advantage of the new plan of the New York Clearing House Association for exchanging checks at two-thirty, eight and nine o'clock in the morning in addition to the regular clearings at ten o'clock.

Because of these peculiar requirements the decentralization of accounting is an essential of bank organization. Naturally, the control figures relating to all of the departments must ultimately be brought together in the general ledger, and this

ORGANIZATION CHART OF A LARGE BANK
SHOWING ADMINISTRATIVE AND OPERATING AUTHORITIES


DIRECTORS AND EXECUTIVE COMMITTEE
BUSINESS ADMINISTRATION:
OPERATING AUTHORITY:
PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
VICE-PRESIDENT
ASSISTANT VICE-PRESIDENT
ASSISTANT VICE-PRESIDENT
ASSISTANT VICE-PRESIDENT
ASSISTANT VICE-PRESIDENT
CASHIER
ASST. CASHIER
ASST. CASHIER
MANAGER
ASST. MANAGER
BRANCH
ADMINISTRATION, PAYING, RECEIVING, LOANS AND DISCOUNT, NOTE TELLER, SERVICE, BOOKKEEPING.
ASST. CASHIER
ASST. CASHIER
BRANCH
ADMINISTRATION, PAYING, RECEIVING, LOANS AND DISCOUNT, NOTE TELLER, SERVICE, BOOKKEEPING.
ASST. CASHIER
ASST. CASHIER
ASST. MANAGER
BRANCH
ADMINISTRATION, PAYING, RECEIVING, LOANS AND DISCOUNT, NOTE TELLER, SERVICE, BOOKKEEPING, NIGHT FORCE.
ASST. CASHIER
MANAGER
ASST. MANAGER
BRANCH
ADMINISTRATION, PAYING, RECEIVING, LOANS AND DISCOUNT, NOTE TELLER, SERVICE, BOOKKEEPING.
ASST. CASHIER
ASST. CASHIER
ASST. CASHIER
BRANCH
ADMINISTRATION, PAYING, RECEIVING, LOANS AND DISCOUNT, NOTE TELLER, SERVICE, BOOKKEEPING.
ASST. CASHIER
MANAGER
ASST. MANAGER
BRANCH
ADMINISTRATION, PAYING, RECEIVING, LOANS AND DISCOUNT, NOTE TELLER, SERVICE, BOOKKEEPING.
ASST. CASHIER
ASST. MANAGER
NEW BUSINESS
ADMINISTRATION, NEW ACCOUNTS, FILES.
ASST. CASHIER
PERSONNEL
CHIEF CLERK, FLOAT, PURCHASING, MEDICAL, SPECIAL OFFICERS, RESTAURANT, CABLE AND TELEGRAPH, TELEPHONE, ORDINARY MAIL, GENERAL FILES, DUPLICATING, PAGES.
ASST. CASHIER
ASST. MANAGER
CREDIT
ADMINISTRATION, CUSTOMERS, COMMERCIAL BANK FILES.
ASST. CASHIER
SECURITIES
ADMINISTRATION, PURCHASE AND SALES, STOCKS AND BONDS, RECORDING.
ASST. CASHIER
LOANS AND DISCOUNT
DEMAND LOANS, TIME LOANS, BILLS PURCHASED, DISCOUNT.
ASST. CASHIER
CASH
SIGNATURES, PAYING, CERTIFICATION, COIN & VAULT, REGISTERED MAIL AND EXPRESS, RECEIVING.
ASST. CASHIER
CHECK AND COLLECTION
MAIL TELLER, CHECK DESK, NOTE TELLER, BRANCH TELLER, COUPON COLLECTION, TRANSIT, NON-CASH COLLECTION, ADVISING.
ASST. CASHIER
MANAGER
ACCOUNTING
GENERAL LEDGER, EXPENSE, INTEREST, CENTRAL FILE, BOOKKEEPING.
ASST. CASHIER
ASST. CASHIER
MANAGER
ASST. MANAGER
TRUST
ADMINISTRATION, PERSONAL TRUST, CORPORATE TRUST, REGISTRATION & TRANSFER, COUPON PAYING, SAFE KEEPING, TAX.
ASST. CASHIER
ASST. CASHIER
ASST. CASHIER
MANAGER
ASST. MANAGER
FOREIGN
ADMINISTRATION, EXCHANGE, LETTERS OF CREDIT, COLLECTION, ACCOUNTING.
ASST. AUDITOR
ASST. AUDITOR
AUDITING

is maintained usually in the deposit accounting department, although it is not unusual to find the general books of account, because of their confidential nature, maintained in a unit which is separate and distinct from all other operating activities.

In this important respect, then, bank organization shows a marked contrast to typical forms of organization in the industrial and commercial fields. It is an illustration of the principle that organization is modified by purpose and conditions and that the need for dispatch, as well as the development of highly specialized experience and skill, are entitled to take precedence over logic and theory as applied in an abstract way to principles of organization.

D. Control, Direction and Supervision

Our discussion of the structure of the bank organization has brought us to a point where it is essential to consider practical ways and means of achieving successful operating results. We have discussed the inanimate and static phase of organization, for that is after all the correct way in which the structure should be characterized. We now come to the problem of dynamic character, namely, the necessity of supplying that degree of control, direction and supervision which will effectively weave together the various functions of the organization, maintain them in balance and, without waste effort or obstruction of the machinery, move the organization forward smoothly, aggressively and with dispatch to higher and higher levels of effective performance.

This is a problem of administration and, as such, implies consideration of and decision upon the affairs of the institution in a broad and general way, the formulation of the necessary policies for the successful conduct of its affairs, and the tying together of its chief functions so that control may be properly supported by direction and supervision.

In the industrial and commercial fields it is well to remember that while we have large numbers of successful business organizations of great size, it is nevertheless true that well over ninety per cent of the total number of business organizations in the country employ less than five hundred people. It is in this latter group, as engineers doubtless know, that we only too often find the achievement of successful results blocked by the absence of sound organization and effective control, direction and supervision.

With respect particularly to control, it is probably correct to say that in the majority of smaller business organizations of the country this element is still exercised by the owner-manager type. In other words, those who own the organization are at the same time to be found identified with its management and the administration of its affairs.

This situation has frequently created an acute problem, particularly because ownership does not ipso facto make for good management. The trend in the larger organizations, especially where material amounts of capital investment are involved, is distinctly away from this dual relationship. The opinion may be ventured that this trend is for the best benefit of the organizations concerned.

When we look at the situation as it relates to commercial banks we may say that from the very beginning, except in the smallest banking units, there has been a clear line of demarcation between ownership and management. This has been effected not necessarily in recognition of sound fundamentals of organization, but because the directorate of a bank, which is largely representative of ownership, is drawn from many different lines of business. This is done with the objects in view of strengthening and enhancing the influence of the bank in the community and of making available to the bank the comprehensive knowledge possessed by individual members of the directorate regarding credit and general business conditions in the several fields with which they are respectively identified.

It is furthermore true that administration of the affairs of the organization, which in the commercial and industrial fields is so frequently delegated to such an extent as to make it a pro forma function, is quite differently and much more effectively exercised in the banking field. The individual director of the bank has a personal responsibility which he cannot escape or delegate to others, for the law makes him liable for his acts of omission or commission in a most definite manner.

It is not to be supposed, of course, that the directors of a large bank, most of whom are identified with important interests elsewhere, should control the affairs of the institution without delegation. Such delegation, however, is generally exercised through the organization of important standing sub-committees of the Board, such as the Executive, Discount, Loans, Personrel Auditing, and others.

One of the chief problems of the banking organization is to arrange its affairs in such fashion that these committees may have immediate, reliable and comprehensive information on the daily transactions, and that the procedure in furnishing and acting upon this information may promote the element of dispatch, while at the same time fully protecting the factor of security.

With the consolidation of banking interests, which is so pronounced a characteristic of the history of banking in recent years and which has come largely in response to the necessity of organizing banking facilities on such a scale as to keep abreast of the ever growing banking requirements of large commercial and industrial organizations, the problems of administration become increasingly important and emphasize the need for sound control and direction.

Directly related to these two factors and interwoven with them most intimately is the problem of providing effective supervision. Whatever may be said with regard to this problem in the commercial and industrial fields applies with equal force to the bank organization, for the very nature of supervision implies that it must be exercised in terms of human relationships and the improvement of these presents like aspects in all fields of human endeavor.

Essential as are control and direction for the accomplishment of the purposes for which an organization is established, achievement of satisfactory results can only be secured through proper supervision, for this factor constitutes an indispensable force in securing adherence to established policies and practices. The validity of this statement will at once be conceded if we recall the well-known tendency of individuals gradually to depart from any scheme of organization and procedure laid down for their guidance. Without effective supervision it would soon become impossible to keep an organization headed in the right direction and to supply the necessary impetus so that increasing standards of performance might be attained.

If there is one outstanding organization problem to be emphasized here, it is the need for adjusting and modifying the factor of supervision so that at the varying levels of importance no executive will be found whose responsibilities include supervision over more than a very limited number of employes.

Because of wide differences in the temperaments of individuals occupying supervisory positions, there will usually be found in business organizations, including banks, material inconsistencies in the exercise of supervisory authority. Some executives will bring to expression in their attitude so limited, if not atrophied, a conception of supervision that in the practical application thereof it amounts to not much more than control or direction.

On the other hand, other executives, and these are perhaps found in more frequent number, will disclose in the exercise of supervision a belief that it is tantamount to meddlesome interference with routine. In furtherance of this point of view they will supervise and inspect daily operations most minutely, thereby creating an excessive burden for themselves and stifling the initiative and development of their subordinates.

If executives of all kinds of institutions could be made to realize that it is the function of the rank and file to push the routine through the channels laid down for its performance and that it is the responsibility of executives to limit their energies to the improvement of such channels, allowing only the irregular and out of the ordinary matters to be referred to them for inspection and decision, a tremendous step forward would be taken in the accomplishment of better operating results. In fact, it may not be going too far to say that the whole field of management may be characterized as a problem in executive supervision.

E. Authority and Responsibility

It is unfortunately true in the banking organization, just as in the commercial and industrial fields, that while those in effective control of administration are quite willing and ready to assign responsibility to subordinate executives and employes, they are not always so willing to delegate and confer at the same time the requisite degree of authority which reasonably goes hand in hand with the responsibility to be assumed.

It is axiomatic that the exercise of any responsibility carries with it, by implication at least, reasonable authority with respect to determination of practical questions involved in carrying out such responsibility. On the other hand, this point of view is seldom recognized to the fullest extent and one of the chief and seemingly constant difficulties attending the administration of business enterprises of all kinds arises out of this very problem of the proper delegation, co-ordination and gradation of authority and responsibility.

It is small wonder then that we not infrequently discover within the various functions of a bank (1) the existence of an executive overload due to limited delegation of authority; (2) lack of co-ordination of authority resulting in concurrent jurisdiction by two or more executives over the same subject matter; and (3) failure to grade and taper off the function of authority from the apex of the organization to the rank and file, thus militating against clearly defined reporting relationships and the placing at pivotal points of that degree of capacity commensurate with the responsibility assumed.

To furnish an example of how one banking institution worked out a solution to the problem here presented, the following paragraphs are quoted from an article[2] which appeared in the October, 1919, number of the *Federal Reserve Club Magazine* published for the employes of the Federal Reserve Bank of New York:

> The purpose of this article is to set forth the main considerations which should be brought to expression in order that an intelligent idea may be conveyed to the employes of the Bank of the objects which the new plan of organization seeks to accomplish. The plan has been built up upon a recognition of the functions into which the work of the Bank may be logically divided. There are four main groupings as follows:
>
> 1. Organization
>   - Law
>   - Accounts
>   - Administration
> 2. Operation
>   - Cash and Custodies
>   - Collections
>   - Foreign Relations
>   - Loans
>   - Investments
>   - Fiscal Agency
>   - Government Loan
>   - Buffalo Branch
> 3. Federal Reserve Agent's Functions
> 4. Audit
>
> In each of these groupings certain functions have been recognized, as indicated, and in connection with each function there have been established the departments which have the responsibility of carrying on the routine work. For the purpose of facilitating this work and relieving the junior officers from too great an administrative burden, each department has been divided into one or more divisions. The divisions, in turn, have been divided into sections, in line with the routine work to be performed.
>
> It is well to refer to the distinction between the departments included under the two main groupings of Organization and Operation. Under the former heading there have been brought together the various departments which have relation to the institution as a whole. In other words these departments represent certain functions the performance of which brings them in contact with all other departments of the Bank. The departments grouped together in the main grouping of Operation are on the other hand self-contained to a degree and perform the technical operating work of the Bank.
>
> The executive and administrative control is vested in three grades of officers, as follows:
>
> 1. General Officers
> 2. Senior Officers
> 3. Junior Officers
>
> The General Officers, consisting of the Governor, the Chairman of the Board of Directors and the Deputy Governors, form a Managing Committee which reports through the Executive Committee to the Board of Directors. To this Managing Committee the Organization Counsel is attached as adviser in matters relating to organization and personnel. The Secretary of the Bank acts as Secretary at the meetings of the Board of Directors, the Executive Committee and Managing Committee. It is the plan to submit to the Managing Committee the affairs of the Bank in a broad general way. Only matters of major importance will come before this Committee for consideration.
>
> The Senior Officers are in charge of the functions with which their titles are respectively associated. The principal duties will be to develop the policies governing the functions of which they have charge, and they will be responsible for the general supervision of the operating departments under their control. It is understood, however, that they will do the planning rather than the operating work.
>
> The Junior Officers are designated as Managers of Departments and are in immediate control of the operating functions. It is the intention to emphasize the importance of the Junior Officers' positions and to add to the responsibilities thereof as time passes. As far as the rank and file are concerned, the Managers are the chief operating officials.

At the time of introducing the plan of organization described into the Federal Reserve Bank, an organization manual which defined and delimited the authority, responsibility, duties and reporting relationships of all officers and operating heads, and the work of all departments and other operating units, was distributed to every employe with supervisory authority. In this way all possibility of conflict or misunderstanding regarding authority and responsibility was eliminated.

---

[2] Harry Arthur Hopf, "An Interpretation of the New Plan of Organization."

IV. Organizing the Personnel

A. Scope of the Personnel Problem

Any discussion of problems of organization must necessarily take into account the human factor for, no matter how well the structure has been planned and built it can only be vivified by manning it with human beings who must be brought together in effective working endeavor and must be so organized as to insure the achievement of co-operation, team play and esprit de corps. Structure, therefore, is the warp and personnel the woof that, combined, make the completed fabric. As a problem in organization, the human factor, accordingly, takes first rank whether in the commercial and industrial fields or in banking.

It is not proposed, however, to dwell extensively upon the human factor but rather to indicate clearly the scope of the organization problem involved and then to discuss specifically certain phases thereof which are of particular concern to the banking institution. In order to present a comprehensive picture of the organization of the activities dealing with the human factor in banking, there is reproduced at this point a statement of such activities derived from a study of personnel problems in financial institutions throughout the United States undertaken by the writer several years ago.

To facilitate this study, and in order to obtain information concerning current practices in such institutions, a questionnaire was prepared with the aid and co-operation of nearly fifty personnel specialists. The main divisions representing the principal phases of personnel work were Employment, Remuneration, Training and Promotion, Health, Personal Service, Co-operative Activities and Incentives. To these were added a group for information of a general character and one for miscellaneous information. The complete classification showing the leading topics considered under each division is reproduced on the following page.

This classification, though not necessarily complete, is a comprehensive statement of personnel activities in banking organizations and will serve to portray both scope and content of the problems of organization with which banks are faced along these lines.

We will now take up for discussion, in detail, some of the specific problems of personnel organization and administration with which the bank is particularly concerned.

B. Employment

Problems of employment in banking, as far as clerical positions are concerned, differ in no wise from problems along these lines found in other fields. In the matter of selection, one of the important aspects of employment, if emphasis is to be placed on any factor, it may be said that banks are most definitely concerned, by reason of the nature of their business, with the determination of the presence of the quality of integrity among applicants.

Among the outstanding problems in connection with employment, we may instance the following:

1. Women vs. Men

The influx of women into business, especially in the last decade or two, has caused a marked change in the employment policies of banks. Formerly a female employe was a rare phenomenon indeed, but today many banks recruit their employes from each sex in nearly equal proportion. In fact, it is not at all infrequent to find women occupying junior executive positions in banks. The reasons for this development are not far to seek. With the advent of size and complexity of operations, subdivision of functions and specialization have had to be introduced into banks, with the result that many routine positions in existence today involve work requirements and clerical capacities which differ in no wise from those found in commercial and industrial organizations. It may, however, be added that here and there in banking institutions, whether because the banker, too, is a creature of habit and does not readily adjust himself to new points of view in such fundamental considerations as personnel problems, or whether for other reasons, modification of employment practice is creeping in and a tendency is exhibiting itself to give preference again to male employes, particularly in filling positions above the rank and file.

2. Executives and Specialists

In organizing the official staff of a bank, the dominant aspect of the problem rests upon a consideration of the necessity of staffing the operating positions with trained specialists in each of the particular functions involved and of tenanting the principal executive positions with well-trained and experienced individuals who should include in their background intimate familiarity with banking organization and procedure and should, furthermore, have capacity and breadth of view sufficient to deal

DETAILED LIST OF PERSONNEL ACTIVITIES IN FINANCIAL INSTITUTIONS

- GENERAL
  - Organization
  - Centralized Employment Division
  - Flying Squadron (Float Force)
  - Labor Turnover
- EMPLOYMENT
  - Selection
    - Sources of Supply
    - Interviews
    - Mental Tests
    - References
  - Placement
    - Information and Rules to New Employes
    - Introduction of New Employes
  - Discipline
    - Attendance and Tardiness
    - Deportment
  - Separations
  - Reinstatements
  - Records
- REMUNERATION
  - Salary Administration
  - Adjustments
  - Extra Compensation
  - Insurance
    - Group Insurance
    - Disability Insurance
    - Retirement Allowances
  - Vacations
- TRAINING AND PROMOTION
  - Instruction Through Operating Manuals
  - Vestibule School
  - Other Training Courses
  - Rating of Employes
  - Control of Progress
  - Promotions
  - Transfers
- HEALTH
  - Physical Examinations
    - Entrance Examinations
    - Periodic Re-examinations
    - Eye Tests
    - Dental Work
  - Medical Service
    - First Aid
    - Treatment on Premises
    - Medical Advice
    - Health Lectures and Propaganda
    - Home Visits
    - Outside Medical Contacts
  - Health Facilities
    - Rest Rooms
    - Gymnasium
  - Sanitation and Hygiene
    - Illumination
    - Heating and Ventilation
    - Noise
    - Sanitary Arrangements
    - Drinking Water
    - Toilet and Locker Rooms
    - Personal Hygiene
    - Rest Periods
  - Equipment
- PERSONAL SERVICE
  - Personal Interviews and Adjustments
  - Food Supply
    - Dining Room
    - Company Store
  - Education
    - Co-operation with Employes' Clubs
    - Co-operation with Outside Agencies
  - Housing
  - Vacation Plans
- CO-OPERATIVE ACTIVITIES
  - Club Activities
    - Social
    - Educational
    - Recreational
    - Athletic
    - Co-operative Buying
  - Thrift and Savings
    - Building and Loan Associations
    - Savings Societies
    - Other Thrift Activities
    - Benefit Associations
- INCENTIVES
  - Financial and Non-financial Rewards for Attendance and Work
  - Staff Meetings and Conferences
  - Suggestion Plans
  - Management Sharing
  - Outside Contacts
- MISCELLANEOUS
  - Special Studies
    - Job Analysis
    - Wages, Methods of Remuneration, etc.
    - Hours
    - Fatigue
    - Turnover, etc.
  - Statistics

with problems of business in general as well as specific banking problems.

Then there is a third group of executives who are specialists by training but whose experience and qualifications need not be comparable to those in the two classes just cited. These specialists find their sphere of usefulness in the banking organization mainly along lines which will be referred to in the next section of this paper. Specifically, we may say that the group includes Managers of Industrial, New Business and Statistical Departments.

To the Employment Department, the filling of vacancies on the executive staff of a bank does not ordinarily constitute a hiring problem, for banks have long pursued the policy of promotion from within and can usually find among their own personnel suitable timber for promotion to all existing positions. The establishment of a new department or service, of course, would be more than likely to necessitate going outside the organization to find satisfactory applicants.

One of the outstanding problems in connection with personnel in a bank is the necessity for handling the division of labor in such a manner as to promote the essential element of dispatch. The necessities of the daily routine are such that it has long since been impossible to compress it effectively within the compass of the daily work period from, say, nine to five o'clock. Regardless of the volume of transactions arising on any business day, it is absolutely necessary that these be disposed of on the same day that they are initiated. This brings into focus a peakload problem which at times becomes peculiarly acute.

The solution of the situation is generally worked out through the introduction of two or even three shifts of work during the twenty-four-hour period, through the maintenance of clerical staffs in each department of sufficient size to cope successfully even with material increases of work and, lastly, through the organization of a special unit known variously as a flying squadron or a float force.

This latter organization unit is usually composed of well-trained employes who are familiar with the working requirements of several of the departments of the institution. They are assigned here and there as the condition of work and the emergency of the moment dictate and may be counted upon to fit in just as though they were regular employes of the departments. Some banking institutions have understood how to make service in the flying squadron an incentive to the better class of employes and an avenue to promotion, leading to executive positions in widely differing fields of work.

The entire function of employment requires for its successful performance that it be delegated for the organization as a whole to a special department, usually described as the Personnel or Service Department or by some similar designation. The department concerns itself not alone with the function of acquisition of personnel but also with many other related questions and, in particular, the maintenance of records respecting attendance, punctuality, progress, classification and other aspects of personnel administration.

C. Remuneration

The problem of making remuneration an incentive is one which is of the very essence of management, and it must be admitted that in its solution, banks as a whole have made less progress than has been recorded in other lines. They have, of course, always recognized the existence of a salary problem but relatively few banks have persistently and scientifically attempted to find an enduring solution thereof. For example, the process of job analysis, which in other business fields has long since been utilized as a mechanism for determining the salient elements and characteristics upon which proper measurement of remuneration should be based, appeals even at the present time to very few banks as a worthwhile procedure.

In many cases the appeal which may be made to applicants for employment through the supposedly superior working environment of a bank, as far as atmosphere is concerned, has been relied upon to justify a relatively inferior scale of remuneration. In other cases, and especially where conspicuously successful and powerful banking institutions are concerned, an excess of liberality has prevailed in the matter of remuneration, and this, while of course greatly gratifying to individual beneficiaries, has not resulted in eliminating existing inequalities of remuneration.

There is a very strong need in the banking field, for proper organization of the apparatus that has to do with the standardization and administration of salaries. A great opportunity exists for intensive work along these lines, and this is particularly true with regard to such routine and repetitive work as can be accurately measured on the basis of quantity and quality of production.

In dwelling upon the problem of remuneration, reference should be made, at least briefly, to two important phases thereof, namely, the practice of granting bonuses and the establishment of superannuation and retirement funds. This is not the place to discuss the merits of either of these two methods of remuneration; but it may be stated, with respect to the bonus, that there is a wide divergence of views as to its wisdom and efficacy, and that it cannot be said to have succeeded in convincing employes that it is much more than a legitimate and rightfully earned part of their remuneration. Thus it loses its value as an incentive and is open to the criticism of being a deferred part of remuneration which should more properly be paid in the form of current wage.

With respect to superannuation and retirement allowances, many banks have established and maintained funds for such purposes, but the policies, principles and factors entering into the organization and administration of such funds present a host of variables which fail to disclose substantial unity of viewpoint and understanding. A number of these pension funds, organized with more generosity of spirit than fundamental actuarial knowledge, have rested on an unsound basis which has occasionally called for radical action to correct. It is one thing, in a spirit of liberality to donate a material sum of money for the purpose of providing pensions for superannuated employes, and it is quite another thing adequately to take into account in this connection the accrued liability on the score of past service. Failure to reckon scientifically with this factor during the organization period has inevitably meant that years afterwards the benefits to be bestowed had to be largely modified, and in some instances altogether abandoned, or that much additional capital had to be added to the invested assets of the pension fund in order to make it financially possible to meet the cost of the benefits promised.

D. Training and Promotion

In the banking field the organization of activities dealing with training and promotion may be said to have been kept fully abreast of similar activities in other fields, if not in advance of them. The wisdom of applying the principle of promotion from within has long been patent to bankers, and, with the rapid growth of banking institutions, especially in the last decade or so, the path to promotion has become better defined and is traveled more rapidly, at least by the well-qualified employes, than was formerly the case. That this is a fact appears from general observation of the comparative youth of many of the men found occupying even the most important executive positions in banking. Years ago one naturally expected and generally found responsibility and authority in banks associated with middle-aged, gray-haired, dignified bankers. Today a group of Vice-Presidents of an important banking institution will average in age more often under than over forty-five years. After all, this is a phenomenon which is not confined to the banking field, for we are living distinctively in the age of the young man in business.

With respect to training, much may be said in favor of what banks have been doing for some years in this field. Well organized vestibule schools are not infrequently found in the larger banks, and special training courses, with the emphasis on vocational rather than on educational development, have been established. Often, too, special courses in subjects of general interest to bank executives and employes have been arranged for, and subsidizing of outside educational activities in which employes are encouraged to join has long been a very popular method in the educational work of banks.

The outstanding example of educational activities in the banking field is, of course, the American Institute of Banking, which in the past twenty or more years has been built up to a position of leadership in the educational field. If memory serves correctly, there is no other field of business in which there may be found an organization similar to the A. I. B., with its local chapters in every section of the country and with many thousands of students enrolled annually, all of whom have chosen a banking career as their life's vocation and are assiduously developing themselves under expert instruction to qualify for positions of leadership.

As a distinctly peculiar and perplexing problem of organization in connection with training and promotion, we may cite in passing the need for classification of employes and for the introduction of a scheme of measuring progress. This, of course, goes hand in hand with the general problem of remuneration, and through means of job specifications, job classifications and carefully worked out rating plans and promotion charts, banks are endeavoring to supply a sound answer to this phase of their organization problems.

E. Incentives

It seems fitting in passing from our discussion of personnel to the final section of this paper, to place adequate emphasis upon the entire problem of incentives and to touch upon the fundamentals from which a lasting solution of the problem may be worked out along oganization lines. In order to stimulate its employes to increasing accomplishment and satisfaction, it devolves upon the management of a bank to supply in an organized way the answer to the following question: "What do our employes want?"

In general the bank employe wants what all other clerical employes want, for he is actuated by the same desires and influenced by the same forces. First of all, he wants a fair wage, related to his work and providing for gradual improvement of his standard of living. In additon to this, he wants security of employment and opportunity for advancement in position, good working conditions, scope for self-expression and, last but not least, inspiring leadership. If the bank will provide him with all of these, he would be an apathetic worker indeed who did not respond by giving increased loyalty and co-operation, the inevitable products of satisfaction.

From the organization standpoint, the successful carrying out of the policies implied in the considerations advanced is predicated upon the existence of a well organized Personnel Department, headed by an officer of such rank and authority that he will be able to initiate and carry out a progressive personnel program without the necessity of frequent recourse to the highest executives for approval. It is in this respect that banking institutions have perhaps fallen short of what they might otherwise have accomplished in personnel work, because often the department having the responsibility for this phase of banking organization has been delegated to a junior officer with but limited, if any, experience in this special field. In this way the highly important function of personnel management has been subordinated to instead of co-ordinated with other major functions of the modern banking organization.

With the best of intentions the Manager of the Personnel Department has usually not been able to make his influence felt effectively and so, carefully laid plans for dealing with the personnel problem in a constructive and organized way have been frustrated. No organization problem with which a bank is confronted appears to be of more importance than that of dealing with personnel, and no result should be more gratifying to the management of a bank than to weld together and lead effectively a happy, loyal and cohesive staff, for this is the first essential of successful operation.

V. Developing the Service

It is not difficult to conceive of organization in an abstract way as a static phase of management, but when we seek to interpret the force of organization in terms of its expression in any given field of business endeavor, we soon discern that the static phase, by virtue of the exercise of the function of management, gives way to a condition of flux. Furthermore, we are led to recognize that if organization is to meet the test of experience, it must reveal qualities of elasticity and adjustability to new and changing conditions.

These considerations provide an introduction to a statement of certain developments in banking service which do not fall within the scope of essential banking functions but may be classified as cognate thereto. They have been brought into being because of the ever increasing extent to which banks are participating in the promotion of business on a local, national and international plane. Specifically, such developments are illustrated by the establishment of departments such as the following, which nowadays are found in practically all of the large banks, and, to a limited extent, in a number of the smaller ones: New Business, Branch Banking, Foreign Relations, Industrial and Statistical. Most, if not all, of these features of the work of a bank find their counterpart in the commercial and industrial fields; they are discussed here because they involve organization problems of importance.

A. New Business

There was a time in the earlier history of banking when it was regarded as distinctly unethical for banks to undertake the solicitation of business in any organized manner and, particularly, to indulge in advertising and publicity campaigns. This point of view, inimical if not hostile to two of the forces which have been so largely responsible for business development in this country, has long since been outgrown, and today we find banking institutions vigorously exploiting every possible opportunity for bringing their services to the favorable attention of the public.

From the organization point of view, efforts in this direction, enhanced by increasing keenness of competition, have resulted in the establishment of new business departments on the staffs of which advertising and publicity experts are included. In certain instances banks have gone a step further and have employed specialists whose sole function it is to represent the institution in public and to deliver addresses in different parts of the country on subjects of current value and interest.

As an extension of efforts along new business lines, reference may be made in passing to the activities which have been undertaken by banks to promote the practice of saving among the people of their communities. In the interest of this objective, campaigns are conducted to foster thrift, not only as an abstract idea, but concretely for such laudable objectives as vacation and Christmas funds, life insurance, etc. Having their inception as a new business idea, these activities have resulted in the organization of operating units which in some instances have grown to substantial proportions.

Another by-product of business development has been the creation by banks in recent years of special departments catering particularly to women, with the object in view of attracting their accounts. In furtherance of this purpose such departments have frequently been placed in charge of women executives to whom the rank of Assistant Cashier is usually given.

As to the organization of the New Business Department itself, it should be stated that the work performed by this department has come to be regarded as of major importance and that, consequently, it has been placed under the jurisdiction of an executive of senior rank, usually a Vice-President. The question of size and extent of operations of New Business departments is one which must be determined as a matter of business policy, the governing consideration being the ratio of cost to results produced. Up to the present time very little work has been done by banks in supplying a satisfactory answer to the question: "How much can we afford to spend in getting new business?"

B. Branch Banking

Because of legal restrictions in the United States, the problem of operating branches does not present so complex an aspect as it does in other countries. This statement applies, of course, only to domestic branches; foreign branches, which are not maintained except by the largest banking institutions, will be treated separately later in this paper.

While it is true that the subject of branch banking is one which is foremost in the minds of bankers to-day, their concern relates to matters of political policy and not to any phases germane to the present discussion. The relative simplicity of branch banking as an organization problem is due to the fact that in the majority of our states it is not permitted at all and in a number of others it is restricted to the operation of branches within the city in which the main office is located. Thus, the branch is placed under the direct supervision of the main office.

As a result, although branch bank operation follows the so-called territorial form of organization, that is the setting up at the branch of a complete unit as far as banking operations are concerned, nevertheless the special and more technical phases of banking are in practically every case conducted at the main office. This means, therefore, that in most branches there will be found in full operation the functions of receiving and disbursing money, deposit accounting, savings accounting (where this constitutes a service of the institution), and extending credit within very definite limits; in the handling of all other phases the branch bank acts merely as a receiving agent for the main office.

Operating control of a branch is ordinarily entrusted to a Branch Manager whose rank is on a level with that of Assistant Cashier or Assistant Vice-President in charge of some function or department at the main office.

In the larger and more important branches, however, a Vice-President will not infrequently be found in charge. This is particularly true of such cases as those resulting from the merger of two or more banks, where the main offices of the banks which have been absorbed are retained as branches of the consolidated enterprise. In such instances these particular branches are usually operated as completely functioning banks, rather than with the restricted scope just described. Completely functioning branches are not always the result of a merger, however; often the exigencies of competition, or the favorable locality of a branch from the point of view of securing a large volume of business, make it desirable to establish complete service.

The control of branch banking, where it is conducted on any considerable scale, is usually vested in a Senior Vice-President who directs the activities of branches from the main office and is responsible to a committee of the Board, or perhaps to a committee of senior bank officers functioning as a Managing Committee.

C. Foreign Relations

Reference has already been made to the importance of the banking structure in supporting foreign commerce. The extent to which trade with foreign countries is being developed is based not alone upon the desire of American business to conquer its share of the world's markets, but also on the fact that only in this manner is it possible to utilize to a fuller degree the production facilities which were expanded upon such a huge scale through the conditions brought about by the Great War.

During the post-war period, organization for foreign banking has correspondingly developed and has brought into focus the problems connected with the establishment of branches abroad, as well as the training of expert staffs to meet the peculiar and varying requirements of this highly technical branch of the banking business.

The lack of specialized skill along these lines among existing members of their organizations has forced the banks, in establishing foreign departments, to man them with specialists who have either been trained abroad or who have been recruited from firms engaged in the foreign exchange brokerage business.

As an indication of the scope of the problem of organization in foreign banking, and particularly of the aspect of securing and keeping trained personnel in the service, the fact may be cited that in 1925 one American bank, with associated interests, was represented by sixty-nine strong branches located in leading ports of the world.

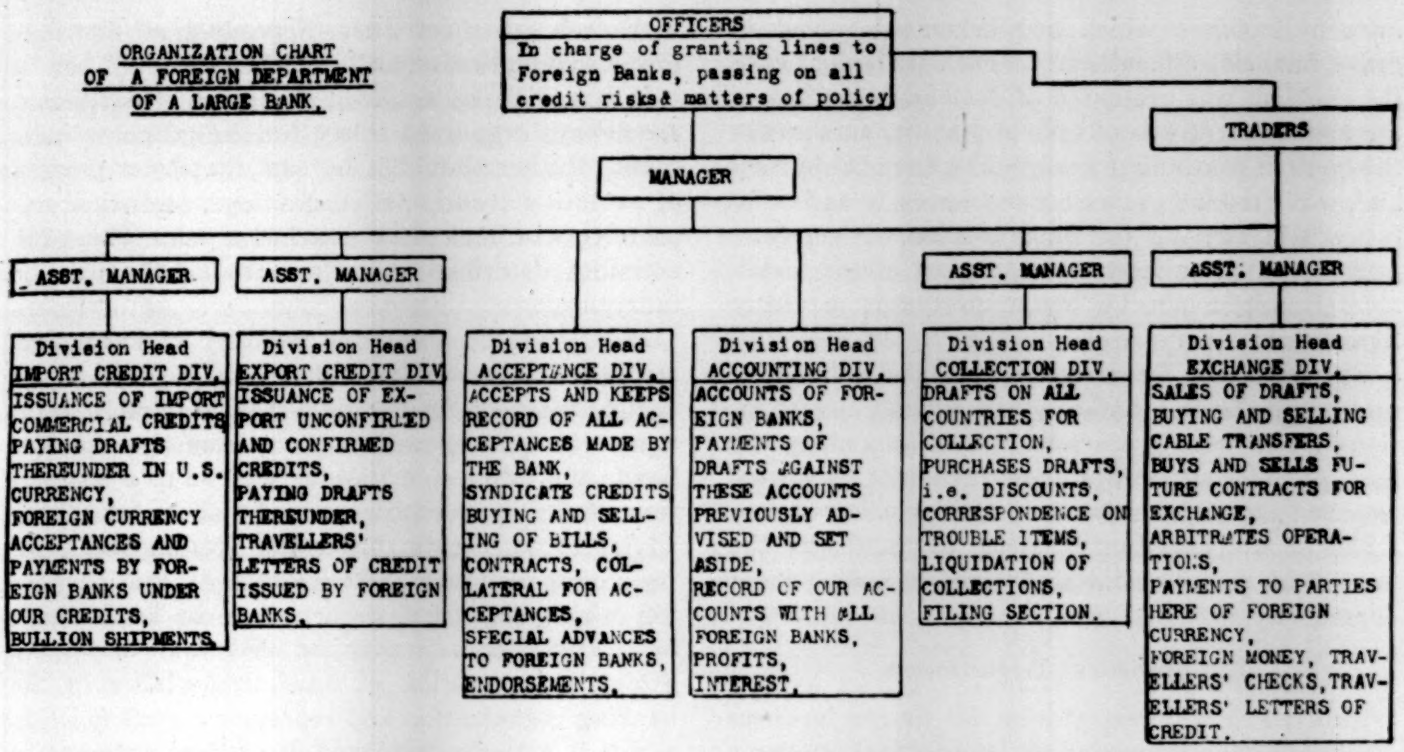
From the organization viewpoint, the establishment of foreign branches represents only one phase of the problem of foreign banking; the other is the creation of a thoroughly functionalized department at the home bank equipped to handle the foreign business with skill, intelligence and dispatch. Most banking institutions have followed the principle that such a department should be thoroughly self-contained, handling independently practically all transactions and service functions relating to the accounts carried on the Foreign Department Ledger.

At least one large bank, however, has treated the organization problem involved in its foreign department in a different manner. Believing that mail, cables, remittances, etc., received for credit of foreign accounts, should be handled in the same department as those received for domestic accounts, and that incoming collections, also, should be dealt with in this manner since they are payable in this country, this bank has divorced the activities having to do with such transactions from the Foreign Department, where they were originally located, and is handling them through the respective departments of the general bank. Thus complete functionalization of work is effected, regardless of the point of origin of the transactions.

The chart reproduced on the following page shows clearly the nature of the work performed in the Foreign Department of the bank in question and indicates those activities which have been separated from it. While the plan is rather unusual, it has been found to be very practicable. Through increasing the volume of work in the general bank by the addition of the foreign work of similar nature, the size of the departments involved is increased, and the bank is therefore warranted in providing better qualified managers for them, a fact which in the long run is undoubtedly conducive to more effective operating results.

D. Industrial Departments

In the past decade or more, the tremendous growth and expansion of commercial and industrial enterprises in this country has imposed upon banking institutions to an extent greater than ever before the necessity of mobilizing the financial resources of the nation so as to place them in the form of loanable capital at the disposal of business. In furtherance of this objective, banks have embarked to an unprecedented degree upon the busi-



ORGANIZATION CHART OF A FOREIGN DEPARTMENT OF A LARGE BANK.

OFFICERS
In charge of granting lines to Foreign Banks, passing on all credit risks& matters of policy
TRADERS
MANAGER
ASST. MANAGER
ASST. MANAGER
ASST. MANAGER
ASST. MANAGER
Division Head IMPORT CREDIT DIV.
ISSUANCE OF IMPORT COMMERCIAL CREDITS PAYING DRAFTS THEREUNDER IN U.S. CURRENCY,
FOREIGN CURRENCY ACCEPTANCES AND PAYMENTS BY FOREIGN BANKS UNDER OUR CREDITS,
BULLION SHIPMENTS.
Division Head EXPORT CREDIT DIV
ISSUANCE OF EXPORT UNCONFIRMED AND CONFIRMED CREDITS,
PAYING DRAFTS THEREUNDER,
TRAVELLERS' LETTERS OF CREDIT ISSUED BY FOREIGN BANKS.
Division Head ACCEPTANCE DIV.
ACCEPTS AND KEEPS RECORD OF ALL ACCEPTANCES MADE BY THE BANK,
SYNDICATE CREDITS BUYING AND SELLING OF BILLS,
CONTRACTS, COLLATERAL FOR ACCEPTANCES,
SPECIAL ADVANCES TO FOREIGN BANKS,
ENDORSEMENTS.
Division Head ACCOUNTING DIV.
ACCOUNTS OF FOREIGN BANKS,
PAYMENTS OF DRAFTS AGAINST THESE ACCOUNTS PREVIOUSLY ADVISED AND SET ASIDE,
RECORD OF OUR ACCOUNTS WITH ALL FOREIGN BANKS,
PROFITS,
INTEREST.
Division Head COLLECTION DIV.
DRAFTS ON ALL COUNTRIES FOR COLLECTION,
PURCHASES DRAFTS, i.e. DISCOUNTS,
CORRESPONDENCE ON TROUBLE ITEMS,
LIQUIDATION OF COLLECTIONS,
FILING SECTION.
Division Head EXCHANGE DIV.
SALES OF DRAFTS,
BUYING AND SELLING CABLE TRANSFERS,
BUYS AND SELLS FUTURE CONTRACTS FOR EXCHANGE,
ARBITRATES OPERATIONS,
PAYMENTS TO PARTIES HERE OF FOREIGN CURRENCY,
FOREIGN MONEY, TRAVELLERS' CHECKS, TRAVELLERS' LETTERS OF CREDIT.

Mail received through the Correspondence Department - General Bank.
Cables sent and received through Wire and Cable Department - General Bank.
Incoming Foreign Collections received and collected through Collection Department - General Bank.
Payments made at request of Foreign Banks through Correspondence Department - General Bank.
Funds paid in for credit of foreign banks through Note Teller - General Bank.
Correspondence Files in General Files - General Bank.

ness of underwriting and marketing bonds, and so great have been their activities along these lines that figures relating to such transactions which appeared formidable a decade or two ago are now regarded as commonplace if not insignificant.

Considerations of safety, coupled with the need for estimating most closely the profit making possibilities present in any given case, have induced banks, prior to the underwriting and marketing of obligations of the class in question, to initiate careful analyses and investigations of the affairs of the organizations concerned. In this connection there developed a need for the utilization of engineering skill and service, and while many banks found that this need could be met by the engagement of outside talent from time to time, others determined that only a permanent staff within the bank itself could do justice to the situation in the long run.

Accordingly, banks in the latter group, among which the largest institutions in the country may be counted, organized their own industrial departments and placed them in charge of specialists who in most cases had had no previous banking experience. Selections for these positions were usually made from the engineering field, for banks were quick to recognize that the training and experience of the modern industrial engineer fitted him admirably to undertake not alone careful examinations of the physical properties and plant equipment, the marketing possibilities and financial strength of organizations desiring new capital, but also to judge accurately of the less easily discoverable yet even more vital factors which may be generally described by the term "management tendencies." And so the engineer, as the most qualified exponent of the modern doctrine of scientific management, found a new field for the application of his talents.

Industrial Departments in banks found an unusual demand for their services and were able to demonstrate their usefulness in a striking manner in the drastic period of deflation through which business was compelled to pass in the year 1921. At that time it became necessary for banks to deal in a special way with concerns in many different lines of business which had become involved in grave financial difficulties. In each individual case the problem was presented of determining whether the management was of sufficient ability to warrant the bank in continuing to carry the financial burden and, while risking graver consequences, to assist the concern in striving for rehabilitation, or whether, because of the inferior management ability available, it might not be better procedure to force liquidation.

The Industrial Departments of banks were called upon to make the intricate and difficult investigations which were precursors of decisions along the lines pointed out, and in many instances they were required actually to take over the operation of concerns in trouble, thus insuring to the latter the benefit of sound, valid and capable management experience.

E. Statistical Departments

Analysis and interpretation of future business conditions constitutes one of the principal problems of banks, for the function of banking is inextricably interwoven with the fabric of all business and any condition of concern to business in general is doubly so to the banker who furnishes credit, the very life blood upon which business must depend.

The forecasting of probable business conditions, as a banking service, represented until recent years merely the expression of the balanced judgment of individuals with very little assistance in the way of expert collection, segregation and interpretation of statistics concerning the wide range of business phenomena indicative of future trends.

Since the World War, however, economics, far from remaining the theoretical and academic field of discussion that it formerly was, has largely through the action and interest of banks become of transcendent importance and value, and it is today the science upon which chief reliance is placed for the guidance of business and its adjustment to varying trends in the general situation.

In carrying out their role of leadership, with its implications of advisory service to business, banks have found it necessary to establish statistical departments whose chief function it is to collate and interpret statistics of all kinds and, by various devices such as graphic charts, index numbers, monthly bulletins, etc., to forecast and present manifestations of the business cycle and to compare with each other activities of production, distribution, consumption and allied fields.

It is not to be assumed that such departments are always organized solely for the purposes indicated. Rather should it be said that by a process of evolution from small beginnings, statistical departments of banks have reached a point where the activities described above are among their major functions.

It is probably true in a majority of cases that statistical departments in banks owe their inception to the need for having available reliable information in connection with the sale and purchase of bonds and other securities, as well as to a recognition of the opportunities for service in furnishing advice to depositors concerning present and prospective investments. Regardless of the purpose for which statistical departments in banks have been established, it may be said that they have grown to a position of much importance in the banking organization and represent a staff function which is actively employed in matters germane to the principal features of the banking business.

So great has been the service that banks have found it possible to provide, through the medium of their statistical departments, that they have succeeded in attracting a tremendous following among business men, the more so as the calibre of the specialists in charge of such departments is, in a number of well-known instances, so high that their opinions come with the force of authority supported by national reputation.

While banks have been to much expense in the organization and development of their statistical departments, it has been a thoroughly productive investment and has contributed much to the education of the business man by authoritative interpretation of the economic facts which have a bearing on his business and by exercising a psychological influence of timely character which has done much to organize his point of view as well as to instill confidence in the validity of the prognostications. As a result, the element of fear which in the past hampered so greatly the progressive development of business, has been materially reduced, and the negative factor of uncertainty has been moderated by intelligent forecasting of probable future business trends.

From the organization point of view, the problems involved in the establishment and development of a statistical department in a bank may be summarized by stating that this department represents essentially a staff function, the successful performance of which requires that it be brought into fairly intimate relation with the chief executives, the operating departments and the public.

The personnel, which must be well trained and above the average in quality, should include such specialists as economic analysts, librarians, research workers, etc., and there should be available a representative library on economics and business supplemented by data of all kinds such as reports of public and private agencies and business corporations.

The chief statistician, or economist, is rarely recruited from the banking profession but is usually a technical specialist with high academic standing in the field of economics. His titular designation is sometimes Economist but more frequently Vice-President. In either case he is an executive of senior rank.

VI. Conclusion

In bringing to a conclusion the discussion of problems of bank organization which has been presented in the foregoing pages, the writer is conscious of the fact that it has been impossible, without gross violation of the limits set, to make the treatment of the subject as complete and comprehensive as its importance would otherwise justify. The three sections dealing with structure, personnel and service, which constitute the backbone of the discussion, admittedly do not exhaust the ground to be covered, but their choice has made it feasible to bring about a certain balance in the use of material which has been of benefit in placing emphasis where it properly belongs.

To measurably approach a complete presentation of the subject, it may be well at this point briefly to refer to some of the conditions surrounding the conduct of banking which have had an important influence upon the development of the principal functions and services.

Foremost among these should be ranked the legal restrictions of nation or state imposed upon banks. In this country more than in any other, legislation has been enacted to safeguard the public in its dealings with banks. From the organization viewpoint, the most important legal enactments are those prohibiting branch banking as practiced in other countries and those limiting the amount of funds loanable to any single borrower to ten per cent of capital and surplus.

The effect of branch banking legislation has led to the creation of a vast number of small, independent banks, whereas the limitation of loanable funds has given rise to a definite trend toward the consolidation or merging of one institution with another in order to keep pace with the increasing demands for credit made by expanding commercial organizations. Recently this trend has been very marked and will probably remain so as long as the present laws continue in force.

In the last decade or more, particularly since the passage of the Federal Reserve Act, legislation governing national banks, state banks and trust companies has been so modified as to place all banks in virtually the same category from the viewpoint of services rendered. For example, national banks formerly were not permitted to administer estates; now they may do so by complying with certain requirements. Similarly, the powers granted to state banks have been enlarged and the competition due to these changes has forced trust companies into the field of commercial banking. Moreover, all classes of banks are now permitted to maintain savings accounts in competition with savings banks.

Second only to legal restrictions in their influence on bank organization are the trade practices and customs of the country. The use of the check in effecting settlement of business transactions to an extent far beyond that found in any other country has been the most potent of these factors. Every day millions of checks reach banks for collection, and the fact that these have to be cleared immediately has occasioned a tremendous increase in the size of departments concerned with their handling, thus creating an organization problem of unprecedented character.

Another trade influence on banking organization is the practice in many industries of calling upon banks to finance them by discounting or collecting commercial drafts on customers, with or without bill of lading attached. Due to this practice, banks have had to organize large departments for the purpose of collecting such drafts individually as distinguished from ordinary check collection which is handled *en masse*. This activity entails a vast amount of routine work which must be performed with utmost accuracy and dispatch because of the great sums of money involved. Banks specializing in this field must have a form of organization very different from that which is necessary in banks dealing with industries not employing this particular method of financing transactions.

The collection of interest coupons detached from bonds is another practice which should be mentioned. Along with the tremendous increase in the size of business organizations there has naturally followed a corresponding increase in the number of bonds sold to investors by corporations. While some of the largest corporations make payment of their own coupons, by far the greater number of such coupons are payable at banks acting in the capacity of fiscal agents. Moreover, in practically all cases, investors deposit the coupons in banks for collection by presentation at the office of the paying agent. Therefore, we find that in this kind of business banks act as agents for investors in making collections of coupons and as agents for borrowers in paying coupons as presented.

This is, of course, an individual problem as are many of those touched upon throughout this paper. Obviously in trying to present the problems of organization which confront banks it has been necessary to conceive of what might be termed a typical bank comprising all functions in even degree. Naturally no such bank exists. Every problem, however, is present to some degree in every large bank and most of them are not unknown to the smaller banks as well.

Lastly, reference should be made to a special problem of organization the importance of which, particularly to the larger banking institutions, would have justified extended treatment in this paper if space had permitted—the planning, construction and utilization of the bank building.

No one who is at all familiar with what has been done by banks all over the country in creating monumental buildings for the purpose of housing their organizations, can doubt that bankers have understood and appreciated the publicity value attaching to structures of fine architectural design, portraying strength and solidity. In striving for results in this direction, however, they have in large part subordinated the more important consideration of so planning the interiors of their buildings as to make them an effective aid in securing successful operating results. In consequence, there is probably no line of business in this country which has had to pay a heavier penalty in the shape of expenditures for costly alterations, re-arrangements and extensions, and losses of operating efficiency, to say nothing of the far more important factors of health and comfort of employes and officers alike.

This condition will persist until bankers learn to profit by the experiences of industrial establishments which have long ago recognized the validity of the principle that the building should be adjusted to the requirements of the organization, rather than that the latter should be restricted by the possibilities of the building.

THE IDEAL organization is this: The chief executive is not an executive at all but a checker-up and inspirer. He properly should have no duties. His place is to see the results of each man's work and to discover what is wrong or how best the activity of a division may be increased, and then to see that the departments act in unison. He does not delegate authority; he reviews authority by results obtained. This throws the responsibility for results upon the under-executives, and, in the ideal type, each of these men has full authority in his own department. If he misuses his authority, it is not the fault of the plan but of the men; the wrong man is in charge, and it is the duty of the head executive to see that the right man is in charge. Likewise, within a department the head will allocate responsibility—each man will run his subdivision within the general plan and be responsible for obtaining results. Every man in the organization will be, so to speak, on a piecework basis.

How this can best be arranged is to be decided on the facts. The big point is to divide activities and to place responsibility so squarely that not only will initiative, and consequently dignity, be built up, but also that the old game of "passing the buck" cannot be played.

With this type of organization the fullest in every man is realized, and there is no human limit at all to the size of the business. This is the new way of business. The centralization should come not in authority but in finance and research. (William R. Basset, *The Organization of Modern Business, pp.* 173, 174.)

Personnel Problems of Staff Men in Industry

By A. B. RICH

Dennison Manufacturing Company

THE title of this paper—"Personnel Problems of Staff Men in Industry"—calls for some definitions. I define "Staff Men in Industry" as those specialists in various fields of management who are not responsible for operating activities, as are foremen, superintendents, etc.—those types that are usually referred to as personnel managers, mechanical or industrial engineers, chemists, time study and rate setting men, etc. By "Personnel Problems" I mean the common difficulties which such men meet in their attempts to establish improvements in standards of work and management, what might be crudely described as the difficulties they experience in getting their patients to take their medicine, or to lead the hygienic life which is necessary for their business health. It is not overstating the case to claim that these are the chief staff problems of all—the most fundamental and important.

In a small manufacturing business it is common to find the foreman or superintendent responsible for all the work of this nature. As a company increases in size, the time comes when it is deemed expedient and economical to place a specialist in charge of personnel matters, or development, or other work. It is at this point that some of the difficulties of which I wish to speak arise.

At the beginning of the work of a specialist of this kind it is very apparent that he is taking over some of the work of the foreman or superintendent; in other words, relieving him of certain of his responsibilities. Perhaps to make myself clearer I might say that the foreman or superintendent feels that his job is being diminished in size and importance. To the foreman or superintendent there thus naturally comes a feeling (whether conscious or unconscious, it does not matter) that in some measure his job has become too big for him, or that other people think it has. In such circumstances to feel a certain sense of defeat is perfectly natural. This again means that some resentment towards the situation is easily turned into resentment or antagonism towards the specialist who is the embodiment of the changed condition. The staff man too often does nothing to alleviate this feeling; in fact, he frequently seems to be ignorant or indifferent to the fact that such a feeling exists. In many cases, certainly, he shows little appreciation of the line man's point of view. Even if the greatest consideration is shown on both sides, there is still a tendency for a negative relationship instead of a positive one; that is, the foreman and the specialist go their separate ways, and do not work out solutions of their problems together.

Too many times the staff man, when he comes to write up a report of his work, ignores or forgets the contributions that have been made by others to the final result. Although no injustice is intended, the net result is a feeling on the part of the line man that the staff man is fattening at his expense.

The foreman's or superintendent's job is, in large measure, the maintenance of the morale of his working forces. He must be sensitive to, and aware of, such forces if he is going to do his job properly. To him these considerations are very real and vitally important. The staff man is, however, all too often far from any realization of these facts. He is apt to create many difficulties of which he is either ignorant or indifferent. He is even apt to consider his specialty as the one redeeming feature of the management, and to feel that everything should be ordered so as to make his way smooth and prosperous. Perhaps it is to be expected that the use of the scientific method as a means of the solution of industrial problems builds up an attitude of mind in the specialist that is intolerant of opinions, feelings, and other expressions of human nature. It is vital for the staff man to realize, however, that if he has not taken into account the psychological factors, he has not done his job, and the least he can do is to accept the contribution of the line man in this respect.

I have seen staff men of great ability who assumed the attitude of an oracle handing down decrees—thus and so should things be hereafter—and who were full of criticism of the factory management for not accepting said decrees. I have also seen staff men who say, or at least appear to feel, that when they have developed a new policy or method, that it should be immediately adopted. This may sometimes be true, but certainly many times it is not true. It may cost far more in the long run to force immediate adoption than to establish standards over a longer period of time. There are staff men who regard their own children as perfect wonders, and expect an ad-

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[1] Paper presented at a meeting of the Taylor Society, New York, December 11, 1926.

miring world to take the same attitude, and who are disappointed and bitter when any criticism is offered of their creations. To such an attitude I would say, that the best forging is the product of the hammer and the anvil; that opposition is the most valuable contribution possible. Many times it is the "priceless ingredient," as our advertising friend says.

Now the measure of a staff man's effectiveness is, in the long run, the results that he accomplishes, and his accomplishment is never a fact until it has taken the place of the old tradition, and become, in a sense, a new tradition. The quickest way to accomplish this is through the co-operation of the line man. This co-operation is most readily obtained from the line man when he has contributed to those changes, and received credit for them. Such changes will have his hearty consent and approval.

Perhaps I can illustrate what I mean by a specific instance. A staff man, endeavoring to get the complete and hearty co-operation of the foreman, presented his analysis of the situation in all its details. He left a number of suggestions for the improvement of things unmentioned in his outline, with the hope that the foreman would suggest them, and thus round out the complete program. The foreman lived up to these expectations, and, as a consequence, felt that he was (as in fact he *was*, in large measure) the author of the suggested changes. I point out specifically that in a case of this kind, the staff man has every opportunity to make a complete and finished proposal for future methods. The foreman is frequently too busy to spare more than an occasional period of study of the results obtained by the staff man's analysis. The foreman, therefore, has only a limited opportunity to show his real abilities in finding a solution of a given problem. The suggested attitude of the staff man in a case of this kind shows a consideration of these facts, and provides in a decent way for participation of the foreman in the result to be obtained.

Some of the characteristics that a staff man must cultivate in addition to his knowledge of his specialty, therefore, are:

Humility. I never understood the beatitude—"Blessed are the meek, for they shall inherit the earth"—until I met a man whose humility was only equalled by his responsibilities of wealth and power.

No one whose knowledge amounts to anything fails to realize how extremely limited is the greatest possible human knowledge, and it sometimes seems that the greater the arrogance and pride, the less the justification for it.

Helpfulness. This attitude of mind is more rare than you would believe. Every change in existing practice is difficult for the foreman, and calls for extra effort and attention until new habits are formed. If you should try to change one little habit like putting your right arm into your coat first, instead of your left arm (provided your left arm is your habit) you would realize how hard it is—and you are not able to work directly on others as you are upon yourself. A foreman can only work through persuasion of some sort or another, as you do yourself, and many of your new schemes seem as senseless and unnecessary to the folks he has to persuade to adopt them, as would a change of right hand first or left hand first.

It is extremely important that all of the staff man's contacts be made in a spirit of helpfulness. One cannot be helpful unless he understands what will be helpful; that is, he must have a sympathetic understanding of the needs of each situation if he is going to be helpful.

Patience. The bulk of my recommendations refer to dealings with human nature, and patience is the greatest possible virtue in this field. In fact, it is more than a virtue; it is a necessity.

Honesty. There are many temptations to exaggerate the benefits to be obtained from a new method or policy—and the expense or dissatisfaction caused by the old traditions. Skepticism for a new plan is to be converted into enthusiasm for a new plan, and it is only human nature for the staff man, temporarily a salesman, to stress the importance of his wares. He should remember that if he is successful, he is going to have more wares to sell, and his reputation for conservative statements is one that must be carefully preserved. If a staff man cannot be honest and free from exaggeration in every respect in all his dealings, he is hopeless. We cannot see any future for him in work of this nature and should strongly advise both for his own and industry's good, that he seek another field of activity.

Thus, the "Personnel Problems of a Staff Man in Industry" may be summed up in the following few words: He must discover ways and means of making himself humble, helpful, patient, and unconditionally honest. Upon the solution of these four problems his capacity to accomplish actual and enduring results depends, and all of them are equally important.

Our Latest Activities

By MORRIS LLEWELLYN COOKE

I. Permanent Scientific Management Exhibit

THE Taylor Society has recently inaugurated a movement destined to bring together in one place a complete collection of exhibits of every kind having a bearing on the development of scientific management. No decision has yet been reached as to the ultimate location of this collection, but every effort is being made so to arrange the material as to make it of the greatest possible service to students of the subject whether tyros or graduate managers. We call it a "library" (with some museum features) devoted to the mechanisms associated with scientific management. It will ultimately include current furniture, forms, instructions, time study data, routines, photographs, etc., as well as those which may have become obsolete in whole or in part, if they have some significance in the historical development of scientific management as at present practiced.

Before the Great War—when we were all propagandists—there was widespread interest in the mechanisms of scientific management. Even those who looked askance at the underlying philosophy saw virtue in procedures and devices resulting from the distinguished labors of such men as Taylor, Babcock, Barth, Crozier, Dodge, Gantt, Gilbreth, Hathaway, Kendall, Lewis, Thompson—not to mention fifty others. Now that the philosophical basis for scientific management is so generally accepted there is a tendency to ignore details of practice so painstakingly built up during the past forty years, and still ninety per cent appropriate for every day industrial use and vitally essential to the successful application of the principles.

The establishment this year at Geneva of an international institute devoted to the promotion of scientific management sanctioned by, and to an extent supported by, the International Labor Office (League of Nations) constitutes the highest obtainable testimonial as to the present day importance of this movement. While scientific management thus obtains its opportunity for maximum usefulness, upon those of us associated with the movement there is placed a renewed responsibility to pass on the torch undimmed. The establishment of a depository for mechanisms and data associated with the development of scientific management is one answer to this call.

In advance of this public notice and general appeal a good many different donations of photographs, printed matter and even furniture have been received bearing on the installations at a dozen different plants. Quarters have been taken at 3604 Walnut Street, Philadelphia, where Mr. J. W. Carter, formerly of the Tabor Manufacturing Co. and now teaching Scientific Management at the Wharton School, University of Pennsylvania, will have charge of assembling, classifying and indexing the material and putting it in such shape that it can be readily consulted by technicians, industrialists and students generally.

Donations are now requested of scrap books, papers, files, classifications, forms, photographs, slides, furniture, time study and other functional exhibits. Send by express if possible to J. W. Carter, care of Miss M. C. Chain, 3604 Walnut Street, Philadelphia. We should get preliminary advice concerning any shipment with bill of lading for a freight shipment.

Those who have been associated with the development of scientific management in one or more plants are likely to have accumulated material which no longer has day-to-day usefulness. We are providing for such things a place where they can be assembled with other exhibits of a like character and where they will always be available. All materials received will be assorted by plants and cross-indexed as to functions. Individual collections of such things may have little or no significance. But when all these things are brought together in one place, classified and indexed, they will constitute a unit of very significant educational and historical value.

A second stage in our program will be the assembly of material describing in detail present day practice in plants having been subjected to scientific management influences. The effort is being made to reproduce the essentials of a scientific management planning room with the attendant exhibits through which the management controls are carried into the shop.

The co-operation of members of the Society is requested in making the enterprise a complete and significant success. It is felt that we have here an opportunity for a unique service and everyone's co-operation is needed.

II. Reference Libraries of Scientific Management in Foreign Countries.

Through the co-operation of members of the Taylor Society and other supporters of the scientific management movement considerable progress is being made in establishing libraries of American management literature in foreign countries. This work has been made possible through the courtesy of authors in donating copies of their books and through donations of the money with which these have been purchased. It is our purpose to continue this work until similar libraries have been established in all foreign capitals where a desire for them has been expressed.

This work was inaugurated in 1924 through the presentation of a library to the Masaryk Academy in Prague as one of the features of American participation in the first international scientific management congress. The address in which Robert Kent, Chairman of the American Committee, made the presentation was received with so much enthusiasm by delegations representing seventeen countries that it became obvious that a similar service to other nations would be appreciated.

As a special evidence of good will to the newly established Polish Institute of Scientific Management a collection of books has recently been forwarded through the courtesy of the Smithsonian Institute to Warsaw, where it will become a feature of the library of the Museum of Industry and Agriculture. The policy has been adopted of locating the books in every instance with established libraries, where it is possible to give them the widest possible circulation.

As a reminder of the recent visit of the British Industrial Mission, of which Sir William Mackenzie was the chairman, a collection of books is now on its way to London. They will be deposited with the School of Economics, University of London—the place designated by the Mission because it has in its personnel equal representation of the employes and the employers of British industry. This collection of books—as do the others—carries appropriate book plates expressing the good will of the American management movement to that of the country to which the books are sent.

Paris already has a splendid array not only of books on scientific management in the library of the ancient Society for the Management of National Industry, but about sixty titles not heretofore found in this collection have just gone forward to this library.

A further collection of books and other exhibits is being brought together to be presented to Italy by the American delegates to the third international scientific management congress to be held in Rome September 4-10 of this year. The assembling of this library is in charge of Professor R. H. Lansburgh of the Wharton School, University of Pennsylvania, late Commissioner of Labor and Industry of the Commonwealth of Pennsylvania. Those having contributions to make are urged to write promptly to Professor Lansburgh.

The Taylor Society will be glad to co-operate with its members and friends in foreign countries either in the establishment of such new libraries or in the amplification of those which are already going concerns.

Foreign Scientific Management Libraries

1. Czechoslovakia—Masaryk Academy, Prague.
2. England—School of Economics, University of London. (Sir William Beveridge, Director)
3. France—Bibliotheque de la Société d'Encouragement Pour l'Industrie Nationale, Fondation Michelin, 44 rue de Rennes, Paris.
4. Italy—Location to be announced.
5. Japan—Industrial Association of Japan, Tokyo.
6. Poland—Museum of Industry and Agriculture, Warsaw, Poland.
7. Switzerland—Library of the International Labor Office (League of Nations), Geneva.

News of the Sections

Central New York

The Central New York Section held its regular monthly meeting on March 17 at the Hotel Syracuse. Mr. C. E. Knoeppel, Managing Director of Waste Eliminators, Inc., of Boston, spoke on "Increasing Net Profits in Industry."

Central Ohio

The March 23rd meeting of the Central Ohio Section dealt with the question of "Quality in Production," with the discussion centering around the idea that there is a point at which quality ceases to be valuable in production.

New York Metropolitan

At the meeting of the New York Metropolitan Section, held at the Town Hall Club, March 17th, Mr. Paul M. Mazur, of Lehman Brothers, New York, talked on "Improving Industrial Efficiency Through Improved Organization." His treatment of the subject stimulated one of the most interesting discussions of the year. Dr. Person presided.

New York Southern Tier

At the annual business meeting of the New York Southern Tier Section Mr. E. R. Cole, of the Acheson Graphite Company, spoke on "Results Achieved Through Foreman Conferences." The following officers were elected for the coming year:

Chairman—Edward D. Sebring, American La-France Fire Engine Co., Inc.

Vice-Chairman—Otto W. Hilbert, Corning Glass Works.

Secretary-Treasurer—Charles O. Schanley, The Kennedy Valve Mfg. Co.

Directors—Frank A. Hatch, Shepard Electric Crane & Hoist Co., Earl Crooks, Willys-Morrow Company; J. Herbert Brautigam, American La-France Fire Engine Co., Inc.,; Benjamin Rathbun, Chemung Foundry Corporation.

Reviews

Elementary Psychology. By Arthur I. Gates. The Macmillan Company, New York, 1925. Pages xiv, 594.

In this volume Professor Gates has apparently followed to a considerable extent the material embodied in his earlier Psychology for Students of Education. Indeed, he acknowledges this in his preface, and states the points of similarity and difference. It seems to the present reviewer that for the general reader the earlier book is somewhat more valuable, since the use which can be made of his material from the educational point of view is somewhat more widely applicable and more concrete than it is possible to be with the material in the present volume. Both volumes have the considerable advantage of simplicity and clarity of presentation, and evidence a comprehensive awareness of the best in current psychological scholarship. Managerial students who have not had the benefit of a systematic psychology course will find a great deal of value in a study of this book. Others will find that the book brings psychological scholarship up to date for them in a rapidly surveyed and accurate manner. A reading of such volumes as Professor Gates' leaves one with a legitimate hope that if the great body of students of business could be brought to a thorough comprehension of the content of modern psychology, it would be an enormous gain for the more scientific, more humane, and more orderly conduct of industrial affairs. If anyone doubts the reasonableness of this claim let him turn to the chapters on the learning process in the present volume and see how much is now known about the detailed technique of influencing people through the learning process—how much that never gets applied either by most professional teachers or by instructors and foremen in industry.

Ordway Tead.[1]

Labor Relations in Industry. By Dwight Lowell Hoopingarner, M.A. A. W. Shaw Co., Chicago, 1925. Pages XVI, 553.

The book covers a much wider scope than its title indicates. Not only does it cover such topics as management, wages, profit sharing, regularity of employment and similar topics usually included in the broad term "labor relations," but it also deals with the subject of labor unions, international labor relations, rehabilitation, immigration, housing and practically the whole gamut of activities which in one way or another affect the lives of industrial workers. This attempt to cover so wide a field between the covers of one book has necessarily resulted in a rather condensed, in some cases superficial, treatment of the numerous topics dealt with by the author.

The manner of presentation which is largely in the form of a priori reasoning from assumed premises, followed by illustrations from industrial experience, lends the work the character of a text book. The numerous source references at the end of each chapter add to that impression. The source references will prove very useful to those who may desire to gain a deeper insight into any of the subjects to which the various chapters are devoted.

The author's attitude toward labor is sympathetic; he regards the trade union as a natural form of organization through which labor is entitled to deal with employers for the protection of its interests.

As regards shop committees or company unions, he finds "only relatively few of the plans thus far proposed for joint management in industry conform in any substantial degree to the general standards for cooperative control" (p. 83).

Mr. Hoopingarner believes that the trend of the trade-unions is toward greater cooperation with management for the attainment of greater efficiency and increased productivity in the results of which labor is entitled to share. He regards profit sharing not as a matter of "benevolence" but as a "right" on the part of labor "to share equitably in a joint product" (p. 252) in addition to a liberal wage which "should be considered as a fixed charge upon the business" (p. 254).

The author lays no claim to any original contribution to the subject of industrial relations, but has presented a painstaking compilation of data from the rich storehouse contained in the literature on the subject.

N. I. Stone[2]

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[1] Department of Industry, New York School of Social Work.

[2] Business Consultant.